DISASTEROUS DUALISMS: A QUALITATIVE INVESTIGATION OF GENDER-BASED BELIEFS ABOUT SUSTAINABLE DESIGN IN ARCHITECTURAL PRACTICE

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ABSTRACT

This study aimed to investigate connections between the historical instrumentalization of women and non-human nature in architectural practice. Semi-structured interviews were conducted with a sample of 48 male and female architects in efforts to qualitatively test theoretical gender categorizations of male and female ways of knowing in contexts of their opinions on and approaches to sustainability in architecture. The primary purpose of research was to generate a hypothesis about the relationship between gender and sustainable design beliefs as well as uncover mechanisms reproducing the found phenomenon, which could indicate possible areas to institute change. The research questions were: How do female architect's perception of, approach to, and philosophies about sustainable design differ from male architects? What influences the conception of an individual's sustainable design philosophy and environmental attitudes?

When consciously asked about their perceptions of gender differences in context of design, majority participants reported "no difference between male and female designs," and claimed both genders produce "equally sensitive designs." However, analysis of individually reported beliefs indicated male and female beliefs diverge in their preferred sustainable design strategies rather then larger sustainable design philosophies that reflect popular industry-wide opinions. Male participants discussed practical issues of energy use and honest evaluation/acceptance of the environment's current state, while female participants discussed community and long term-related issues, such as the inclusion of social context in their definitions of sustainability, and reuse as a sustainable design strategy. It cannot be concluded that female architects express a more evolved approach to sustainable design, though the found gender differences reflect theoretical difference feminist categorizations of women as community

oriented and men as practical. Further investigation of this phenomenon and its causal effects could highlight this hypothesis' relevance to the future of sustainable design in the architecture profession.

BIOGRAPHICAL SKETCH

Caitlin Baiada received her B.S. in Interior Design from the Department of Design and Environmental Analysis at Cornell University in 2010. As part of the College of Human Ecology, Cornell's interior design program placed strong emphasis on the human experience. Here, Caitlin developed her abilities to create functional, responsible, and aesthetically stimulating spaces that provide a cohesive experience for users. Her broad interests in issues of the built environment motivated her to additionally pursue a concentration in architecture during her undergraduate studies, traveling to various cities in Spain and Portugal as part of the Cornell Summer Architecture Program in 2008. Here she worked on studio projects in multidisciplinary teams and expanded upon skills of hand sketching, architectural history, urban planning, and photography. She has also studied at the Danish Institute for Study Abroad in 2008, enriching and diversifying her approach to design challenges through the investigation of a Scandinavian design perspective. She has held a number of internship in various fields of design (interior design, fashion, graphic design) that reflect her diverse interests, but has aspirations to pursue a career in social and sustainable interior design/ architecture.

Caitlin's interests in sustainable design first arose during her freshman year at Cornell with the inspiration of Professor Jack Elliott, under whose guidance she would later go on to complete her Master of Arts in Sustainable Design Studies. She also participated in research with Jack Elliott, prototyping an aluminum nodes and local hardwood beam pentagonal construction system for the proposed Educational and Administrative Building of the Children's Garden of Ithaca. Caitlin's curiosity about how design can respond appropriately to given social and environmental contexts has only grown during her graduate studies and she plans to continue exploration of these topics as she enters the world of professional practice.

Dedicated to Ithaca, NY,
whose natural beauty and positive energy has provided me
with the love, awareness, and inspiration
to see peace in all forms of life.

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CHAPTER ONE

Introduction

1.1 Introduction

Architecture is a cultural artifact created through deliberate human intention. Those intentions, however, are shaped through subconscious social ideologies that reinforce a dominant paradigm of practice, which continues to contribute to the degradation of the natural environment. As estimated in 2010, the building sector comprises 41% of total U.S. energy consumption (US Department of Energy, Buildings Energy Data Book, par. 3) and generates 136 million tons of waste each year (US Environmental Protection Agency, 2012 par.1). Theoretically, this study attributes civilization's destructive behavior to dualistic ideologies, popularized by Descartes' Cartesian separation of the mind from the body, which validates a separation between, and positive valuation of, civilization (mind) over non-human nature (body). Additionally, subsequent dualisms have stemmed from this prevailing worldview, through

devaluation of minority groups (women) that human cultures associate with nature and animality due to their reproductive functions (embodiment, emotionality).

Ideas are effects of social institutions but have a dialectical reality. Both the civilization/ nature dualism as well as a secondary gender dualism identifying men with civilization and women with nature, have been expressed in and perpetuated through the institution of architecture. Control of natural forces, desire for autonomous expression, and celebration of abstract theoretical concepts in architecture reflect the profession's valuation of mind and civilization over body and nature. Additionally, in today's architectural practice, men remain numerically more prevalent—In 2010, 82% of all reported AIA members were men—(The American Institute of Architects, par. 2), hold more power and occupy higher social positions. Money and decision-making is based on male-standards and experiences-as-norm (Ahrentzen 74). Architectural reviews use gendered language to describe space, denoting innovative skyscrapers as phallic symbols of public power. They subsequently relate interior, soft, curved, and natural forms with femininity.

The perceived female approach can be deeply linked to environmentalism through a social and political strain of feminist theory called ecofeminism. The oppression of women in societies (and thus, institutions such as architecture) is compared to the degradation of nature based on human constructs of hierarchical differences between men and women and civilization and nature, justifying the superiority of those in higher-ranking positions (men and civilization) over those in lower-ranking positions (women and nature). Ecofeminists, such as Karen A. Frank (2000 297) have used these parallels to call for an increased respect for non-human nature as well as 'women's ways of knowing,' which include connectedness, inclusiveness, and an ethic of care. Similarly, feminist architectural theorists have described female design utopias as

community oriented, process-driven, inclusive, nurturing, and flexible, in contrast to male designs, which they categorize as ego-driven and exclusive. These females celebrate and embrace their categorically different approach, thus, maintaining gender dualisms.

As explained by Pierre Bourdieu's notions of 'field' and 'habitus', ideology is embedded in institutions as well as in individuals (see chapter 2, pg. 10). Change embedded in institutions must accompany idealist shifts in mentality to achieve true change in the physical world. Architecture is an institution that has potential for making significant difference in both the environmental impacts of the building sector and the way people think about non-human nature, which reflexively shape each other. Thus, change towards a new paradigm must be embedded into the institution of architecture to reverse the ecological damage it has thus far bestowed. However, based on ecofeminist theories and dualistic gender categorizations of women with nature and men with culture, does this shift to a new paradigm have a gendered association?

This study aimed to investigate connections between the instrumentalization of women and non-human nature in architectural practice. Considering architecture's maintenance of gender dualisms and contribution to the degradation of the natural environment, beliefs about sustainable design were examined from a sample of male and female architecture practitioners with efforts to qualitatively test theoretical assumptions regarding male and female ways of knowing in new contexts of sustainability in architecture. Do female architect's historical position cause them to subconsciously think differently about architecture's relationship to non-human nature? Can gender categorizations of male and female design be extended to include a position specific to sustainability in architecture? The primary purpose of research was to understand the relationship between gender and sustainable design as well as to hypothesize the mechanisms responsible for the findings, which could indicate areas to institute change. Thus,

the research questions were: How do female architect's perception of, approach to, and philosophies about sustainable design differ from male architects? What influences the conception of an individual's sustainable design philosophy and environmental attitudes?

Through qualitative semi-structured interviews with a total of 48 employees at a sample of male and female led sustainable and conventional design firms, this study sought to explore the existence of gendered patterns in environmental attitudes and approaches to sustainable design. Personal perceptions of connection with nature, individual sustainable design philosophies, strategies, and processes, how they were acquired, and feelings about dualistic associations between women/nature and men/culture were questioned. The interviews were recorded, transcribed, and coded by common themes mentioned. They were later analyzed to uncover the Overall Perceived Gender Differences, Top 5 Average Code Occurrences by Gender, Top 5 Similarities in Average Code Occurrence by Gender, Top 5 Differences in Average Code Occurrence by Gender, Top 2 Overall Formation Variables of Conception of Nature, Top 4 Overall Formation Variables of Sustainable Design Philosophy, and Top 3 Solutions for Change reported by participants. Findings *indicate* patterns in thinking, but are *not generalizable*, as the sample size is too small to be representative.

CHAPTER TWO

History of the Civilization/ Nature Dualism

2.1 The Civilization/ Nature Dualism

When seeking to understand the current planetary situation, we are faced with a myriad of explanations thrown at us by the media, scientific journals, distinguished researchers, and theorists, each zealously ready to offer a scientific account of everything humans have thus-far done wrong. We are bombarded with marketing campaigns boasting 80% post consumer waste toilet paper and bottled water bottles using 60% less plastic and shown shocking images of what New York City will look like in 50 years if we do not drastically reduce carbon emissions. Unfortunately, everything we know about climate change and environmental degradation seeks to scold us, scare us, and show us the consequences of our actions without asking us to understand the fundamental problem driving the situation. That is, that human civilization no longer conceives itself as part of the natural environment. Instead, it has defined itself as the 'steward' of the natural environment. This prevailing dualism between civilization and nature is

the key theoretical underpinning of all subsequent dualistic thinking that continues to oppress minority groups (including non-human nature) across time and cultures.

Ecofeminist intellectual and activist, Val Plumwood (2007 256), offers a clear definition of this fundamental dualism as "a system of thought where the human and non-human are seen in highly separated (indeed hyper-separated) terms as part of different, hierarchically related, categories or orders of being." In its most common use, "the term 'nature' refers to everything which is not human and distinguished from the work of humanity. Thus 'nature' is opposed to culture, to history, to convention, to what is artificially worked or produced, in short, to everything which is defining of the order of humanity" (Soper 15). This primary separation relies on the championing of the human mind's rational capabilities, which humans have come to identify themselves with, while demeaning and isolating non-human nature to the realm of the corporal: "the denial of non-human minds is matched by the denial of human embodiment" (Plumwood, 2007 255). Levi-Strauss calls the dualism between civilization and nature the "Universal dualism of the human mind." He believes it to be framed as a myth, or ideology, that encodes human problems across cultures. Anthropocentrism, the treatment of non-human nature as a replaceable and inferior other, relies on the acceptance of this dualism, which has become naturalized in Western culture, allowing unconscious reproduction of this destructive relationship (Plumwood, 2007 257). Sadly, in every discussion of 'nature' an a priori discrimination between civilization and nature is implicit, reaffirming 'nature' as something distinct from us. Even when environmentalists discuss humans as part of nature, otherness is still a reference point for comparison as seen in ecological writing that aims to get 'back to nature' (Soper 15-16). Thus, for heuristic purposes, what is commonly called 'nature' will be referred to as 'non-human nature' to avoid reasserting the same dualism this study aims to object.

It is crucial to highlight real world consequences that dualistic thinking has produced through the instrumentalism (utility without moral consideration or commoditization), of non-human nature (Plumwood, 2007 252). Anthropocentric thinking denies nature agency of its own, assuming the non-human sphere to be devoid of its own purpose, and thus, empowers the human colonizer to impose his own purpose (Plumwood, 2007 255). Problematically, "since no one could ever survive without making some use of the natural world, the identification of instrumentalism with mere use (utility with instrumental value) quickly leads to the conclusion that instrumentalism is inevitable and harmless" (Plumwood, 2007 252). Assumed normality of these harmful behaviors leads to repetition of instrumentalism and the continued degradation of non-human nature. One manifestation of instrumentalism is the use of the battery hen to repetitively produce eggs without addressing her comfort beyond what is necessary for profitable performance of the egg producing function (Plumwood, 2007 253). An architectural example is the clearing of a forest to site a new parking lot in a desired location without regard for its cultural significance, the loss of carbon sequestered, or the displacement of biodiversity native to that ecosystem. The increased instrumentalism of natural resources during the Industrial Revolution, coupled with the mentality that the earth perpetually gave, regenerated, and absorbed all things, allowed this anthropocentric behavior to continue, reinforcing dualistic thinking (McDonough, 2002 25). Actions taken from this anthropocentric position have far reaching consequences, evident in social, economic, and environmental injustices as summarized by the noted American environmentalist and educator, David Orr (2007 210):

> Impaired ecological functions, the loss of biological diversity, mutilated ecosystems, spreading blight, pollution, and climate change…Due to the loss of habitat and pollution, the number of species on Earth will decline by a quarter to one-third in this century. The carbon content of the atmosphere has increased by more than a third from its preindustrial level of 280 parts per million and is rising at a rate now over 2 parts per million per year…The human population has

> increased six-fold in the last two centuries and will peak at perhaps nine billion. The number of large predatory fish in the oceans has decreased by ninety per cent. Worldwide soil loss is estimated to be 20 to 25 billion tones per year. Forests, roughly the size of Scotland, are disappearing each year. Within a few years or maybe in a decade or two, we will reach the peak of the era of cheap oil where supply and demand diverge and start down the backside of the curve.

Unfortunately, a western capitalist, instrumentalist consumer model has become the world standard for progress and economic success despite its social and environmental consequences. Desire for economic growth and consumption of natural resources has become so widespread that until recently, a general awareness of its negative consequences has been non-existent and the underlying dualism between human civilization and nature has gone unrecognized. For a better understanding of the reproduction and naturalization of the universal dualism of the mind, we turn to the work of a French sociologist, anthropologist, and philosopher, Pierre Bourdieu and his concept of reflexive ideology.

To Bourdieu, humans reflexively create their own social situations/reality: "social facts are objects which are also the object of knowledge within reality itself because human beings make meaningful the world which makes them" (Bourdieu and Wacquant 7). It is human's choice to perpetuate a dualistic worldview and instrumentalize non-human nature, behaviors that are subconsciously accepted as social facts. Bourdieu conceives of social relations through methodological relationalism, in which he establishes 'field' and 'habitus,' where "a field consists of a set of objective, historical relations between positions anchored in certain forms of power (or capital) ['patterned system of objective forces], while habitus consists of a set of historical relations 'deposited' within individual bodies in the form of mental and corporeal schemata of perception, appreciation, and action" (Bourdieu and Wacquant 16). Thus, corporate structures that already express human's superiority over non-human nature acts as the field, which provides foundation for and fuels the habitus of individual and collective

instrumentalization of non-human nature. These patterns are extremely difficult to break due to the reflexively formative nature of the field and habitus relationship.

Val Plumwood follows Bourdieu's path of thought, more specifically addressing the mechanisms generating the dualistic ideology of an accepted distinction between civilization and nature. Briefly outlining her analysis of this process will provide a conceptual linguistic structure to understand how this dualism is created and embedded into everyday social transactions. She uses the term *hyperseparation* to describe the dualism between civilization and nature, where civilization is a strongly defined dominant identity in radical opposition to nature, the subordinated identity. This causes the dominant group to ignore similarities and relationship with the subordinated identity (Plumwood, 2005 32). *Hyperseparation* is reinforced through deceptively *naturalizing* social constructions, meaning hiding the human relations that have contributed to the current belief or situation, making it seem unchangeable, as a natural state of things (Plumwood, 2005 39). This is most similar to the idea of reflexive ideology presented by Bourdieu, in that humans are not aware of their role in reproducing beliefs embedded in social institutions in which they participate. *Backgrounding* occurs when the dominant group denies agency and autonomy to the subordinate group by viewing their work as inconsequential and unimportant or taking it for granted (Plumwood, 2005 34). This is demonstrated with the championing of the rational mind over body, assuming the work of corporal forces inconsequential in comparison to the powerful structure of the human mind. More specifically, *overhumanizing* is the *backgrounding* of the roles (energy, food, natural resource production) that non-human nature labor play, thus denying the ecological dependency relations between humans and non-human nature, which leads to harmful actions taken against the natural environment (Plumwood, 2005 39).

As explained by Bourdieu and Plumwood, these mechanisms for dualistic thinking are embedded in social institutions enabling them to persist through time and changing social contexts. Perhaps the oldest (in Western discourse) and most influential justification of human superiority over nature can be found in the First Book of Moses, Genesis, in the Old Testament of the Holy Bible. Genesis introduces primary dualisms such as light vs. dark and good vs. evil, which have penetrated modern western civilization and contributed to the human mind's tendency to compartmentalize and contrast differing concepts rather than recognize them as various aspects of one entity. Similarly, Genesis advocates, naturalizes, and indoctrinates societies with the idea of a fundamental dualism the divides humans and non-human natural world through the word of God: "And God said, Let us make man in our image, after our likeness, and let them have dominion over the fish of the sea, over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepth upon earth" (Genesis Chapter 1, 26). This Judeo-Christian dogma entitled and validated human's purpose to both "replenish the earth, and subdue it" (Genesis Chapter 1, 28). This pattern of human superiority can be seen in an uncountable number of structures, institutions, and beliefs throughout history. Even Charles Darwin was first questioned on the validity of his research when he theorized that humans evolved from non-human species and that we still have continuity and kinship with these species. People adamantly rejected these ideas because they wanted to maintain and justify their belief that humans are a special and superior species (Plumwood, 2007 257).

To understand the mechanisms that led to these embedded beliefs we must first examine the behavior and historical roots of this primary dualism. Ecofeminist, Val Plumwood appropriately stated this notion with her words:

> We can't just strike out with a brand-new story with brand-new characters, or no story at all, and hope to make sense of where we are. For better or worse, the old

story holds the keys to who we are, why we are here, where we have come from, and where we might now go. Reflecting, in a culturally self-critical vein, on the master narratives of humanity, culture, reason, and nature in the West can give us valuable clues as to why the dominant forms of 'developed' society, and the relationships with nature they have built on a form of denial, are now failing the most basic tests of rationality and fitness for survival. Reflecting on failure can suggest some guidelines for devising counter-stories that might disrupt the ideals and projects of mastery of the old (Plumwood, 2005 45).

2.2 Roots of the Primary Dualism

The following section provides historical examples for understanding human's conception of their relationship with the non-human natural world. Here, desire for autonomy, fear of nature, and the mind/body dualism are theorized as the creative and reproducing forces for the problematic fundamental dualism between human civilization and nature.

2.2.1. Desire for Autonomy

Friedrich Nietzsche's concept of "Will to Power" highlights the fundamental driving force of an individual as his need to dominate and control external forces operating upon him. Individuals need the ability to master their own destinies and inflict their wills upon others. Nietzsche claims that every action towards another individual is driven by an inherent desire to control him, thus, no actions are truly altruistic. Growth, self-preservation, domination, and upward mobility are all manifestations of this will (Denneson, par. 2). Thus, desire to express

autonomy is the building block of human impulse and desire, which drives humans to also assert themselves over non-human nature.

The widely influential article, "Tragedy of the Commons" by Garret Hardin, illustrates how rapid and uncontrolled population growth (a major contributing problem to the scarcity of resources) as well as other deleterious environmental effects, are primarily caused by an undisciplined expression of autonomy. Hardin (1244) criticizes Adam Smith's affirmation that "the tendency to assume that decisions reached individually will, in fact, be the best decisions for an entire society." He frames Smith's belief as the tragedy of the commons, in which humans continue to instrumentalize non-human nature due to the reality that their individual gains exceed their losses, which are shared as a fraction among all members of society. Unrestricted expression of individual free will valued over all else, will lead to destruction of the commons in forms such as the exploitation of the earth's natural systems, unlimited population growth, and continued rise in the pollution of our atmosphere and oceans. However, it is difficult to avoid this tragedy by placing moral responsibility on the individual, especially in American society, which prides itself on the rights to express individual free will (autonomy) through unconscious naturalization of and identification with the civilization/nature dualism. Thus, "each man is locked into a system that compels him to increase his herd without limit—in a world that is limited. Ruin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons. Freedom in a commons brings ruin to all" (Hardin 1244).

The desire for autonomy has led to the following two influential factors in formulating the civilization/nature dualism. The desire to subdue and control the external forces acting upon him, has caused man to both fear the supremely powerful strength of non-human nature, which

threatens his autonomy, as well as champion his only difference and biggest advantage over non-human nature, the mind, over the body.

2.2.2. Fear of Nature

The dualism between civilization and nature, prompted by fear of nature as a powerful force, was evident in even the earliest of large-scale civilizations. Death rates in early civilizations, such as Mesopotamia and Imperial Rome, were extremely high due to the inability to control natural issues such as crop failures, drought, human wastes, polluted water supply, flies, rodents, cockroaches, and smoke in primitive cities. Therefore, a strong feeling of battle with nature resulted: "Nature herself was represented in Mesopotamian mythology as monstrous chaos, and it was only by the constant labors of people and their patron gods (ideology) that chaos could be overcome and order established" (Hughes 34). Consequently, humans decided to tame and control nature as an effective solution to nature's threats: "Mesopotamians had a well developed sense of the distinction between the tame and the wild, between civilization and wilderness. The proper effort of mankind toward wild things, they believed, is to domesticate them…Animals which could not be truly domesticated were hunted—some, like the lion, to extinction" (Hughes 34). In Imperial Rome, animals were exploited as a symbol of status, wealth, and power demonstrated by the instrumental use of skins for clothing and furnishing, ivory imported from India and Africa for art, and feathers for decoration and costumes. They were also mutilated and killed for entertainment in large-scale venues: "Augustus had 3500 animals killed in twenty-six *venationes*. At the dedication of the Colosseum under Titus, 9,000 were destroyed in 100 days, and Trojan's conquest over Dacia was celebrated by the slaughter of 11,000 wild animals" (Hughes 106). Imperial Rome caused the extinction of many animal

species, proudly boasting their accomplishments because it removed nature's fearful dangers to the people and their land. To the Romans, the ability to subdue a deadly animal substantiated human superiority over nature.

Fast-forward thousands of years to France under the reign of Louis XIV, which reflected the developed view of Europe toward non-human nature. Garden art was an expression of civilization's manipulation of nature into organized, symmetrical, and rational arrangements that demonstrates a desire to control and tame nature (exemplified by the Garden of Versailles near Paris, France). It enabled people to fulfill their fantasies and create combinations that would never naturally occur: "It became a general ambition to substitute for dull orchards true gardens arranged with taste adorned with grace and filed with all those delightful objects which until then had existed only in the poet's imagination" (Laugier 134). Through the controlled and manipulated garden, people were able to appreciate and engage with nature (though contrived), without fear of harm.

When venturing to America, Europeans were encountered with what William Bradford described in his journal of the Pilgrims during his first winter in America as "hideous and desolate wilderness, full of wild beasts and wild men" (Adelson 281). The European view toward the mountains and forests was fear and loathing. This fear perpetuated the notion that wilderness was something utterly distinct from human civilization; something that must be explored and conquered. Even in second half of the 20th century, the United States Congress Wilderness Act (1964) Section 2 (C) continued to define wilderness as "an area where the earth and its community of life are untrammeled by man, where man himself is a visitor and does not remain" (Adelson 280). In his essay, *The Trouble with Wilderness,* environmentalist William Cronon discusses the tendency for people to hold a preconceived image of what 'wilderness' looks like:

"A rugged mountainside is wilderness, a dark and tangled forest is wilderness, a barren desert may be wilderness, but an untamed grassland is not. Why not? Because it does not engender the same sense of fear? Of reverence? Of strangeness?" (Adelson 280). This notion identifies wilderness with an inherent level of fear or magnitude, demonstrating the socially embedded separation of wilderness from a more secure notion of civilization. Cronon draws attention to the false categorization of degrees of 'wild' and 'natural', which maintain the separation of humans from non-human nature, physically apparent in the social conception of 'nature's boundaries': edges of parks or protected areas (Pretty 9). Although biodiversity and conservation preserves promote environmental stewardship, they permit destruction of the areas outside the specific enclave and maintain the harmful dualistic paradigm.

2.2.3. The Mind/Body Dualism

Throughout history, human civilizations have aimed to conquer and reign victorious over the feared forces of non-human nature through a rational imposition of their minds. This was first expressed in the form of religion and philosophy and later through a more mechanistic approach, science, which has come to replace religion as the ultimate declaration of human superiority. Even the earliest Greek philosophers, such as Plato, saw the material world as inferior and corrupting to the higher powers of the mind and reason, represented by elite males. Greeks aspired to "ascent to a better world of spirit beyond earthly, embodied life. Matter, death and decay would ultimately be conquered by the opposing elements of spirit and reason in a process of dematerialization" (Plumwood, 2007 256). The value placed on higher intelligence of humans is evident in St. Augustine's definition of 3 grades of soul. He defines the first as that which pervades all living parts of the body (the power of life), the second in which there is sensation

and lives in a manner peculiar to self (organs of sensation), and the third, which rests in the mind (intelligence) that only man posses (St. Augustine 287). This part of the soul of the world is called God and in humans is called genius. The attribution of the highest grade of the soul to a limited human group demonstrates an anthropocentric view that withholds an essential element from all other natural species.

The essential roots of mind/body dualistic thinking originated in Descartes' Meditation on First Philosophy. He pondered the nature of what a human being, particularly himself is, and concluded: " I am…precisely nothing but a thinking thing; that is, a mind, or intellect, or understanding, or reason" (Descartes 31). Descartes (31) noted a distinction between the mind and the body, which he understood to be "enclosed in a place, and of filling up a space in such a ways as to exclude any other body from it; of being perceived by touch, sight, hearing, taste, or smell." He uses the example of a piece of wax, claiming that he views it with his eyes, but that he cannot perceive it without a human mind, which constitutes the ultimate state of being. Descartes (33) writes:

> For if I judge that the wax exists from the fact that I see it, certainly from this same fact that I see the wax it follows much more evidently that I myself exist. For it could happen that what I see is not truly wax. It could happen that I have no eyes with which to see anything. But it is utterly impossible that, while I see or think I see (I do not now distinguish these two), I who think am not something.

Thus, to Descartes the mind is categorically superior to the body, which it perceives through intellectual understanding. The body is activated by the forces of the mind, which provide context for body's meanings.

In the "Second Formulation of the Categorical Imperative: Humanity As An End In Itself" written by Immanuel Kant (1873), he claims all rational beings have a will, or an objective determination to an end. To Kant, this rationality gives humans an ultimate worth and

thus, their relative, subjective ends become practical laws. He applies this to "man and generally any rational beings" and believes he "*exists* as an end in himself, *not merely as a means* to be arbitrarily used by this or that will, but in all his actions, whether they concern himself or other rational beings, [they] must be always regarded at the same time as an end" (Kant, 1873). Reduced to its essence, this statement reads: "rational nature exists as an end in itself" (Kant, 1873). This logic of emphasis on rationality creates the foundation for his more controversial claim that it is justified for humans to use animals and other elements of nature as a means to their own ends. Kant says, "so far as animals are concerned, we have no direct duties. Animals are not self-conscious and are there merely as a means to an end. That end is man" (Kant, 1963). Additionally, humane treatment to animals, according to Kant, is only beneficial because it demonstrates positive human characteristics that translate to humane treatment of other humans: "we can judge the heart of a man by his treatment of animals…tender feelings toward dumb animals develop humane feelings towards mankind" (Kant,1963). As an influential philosopher, Kant's notion that animals can and should be used to fulfill human needs perpetuates the justifications of humans as superior beings due to an inherent rationality and contributes significantly to a modern anthropocentric viewpoint that normalizes instrumentalism of non-human nature.

Similarly, the notion of human superiority over other natural orders is evident in 18th century philosophical literature, which highlights rationality as the primary difference between man and other species. During the Enlightenment, Galilean and Newtonian method inspired 17th and 18th century thinkers to theorize about morality, social and political human life according to Newton's vision of a law-governed nature as model. The new model was that of secular, rational arguments associated with the human mind (Benton 36). When modern science came to replace

religion, humans subordinated nature to the realm of scientific law and technology: “Modern science, now with religious status, has tended to inherit and update rather than supersede these oppositional and supremacist ideals of rationality and humanity” (Plumwood, 2007 256). It was used to tame and overcome the dangers presented to civilization by non-human nature through new discoveries aimed to postpone death and other bodily limitations imposed upon humans.

In “The One Dimensional Man,” Herbert Marcuse claims human civilization has historically transformed nature for its integration into the human world. By rationalizing and subduing nature, man is able to liberate himself from the oppressive and dangerous forces of nature itself. Explained by Marcuse, “History is the negation of Nature. What is only natural is overcome and recreated by the power of Reason…With the emergence of man as the animal rationale-capable of transforming Nature in accordance with the faculties of the mind and the capacities of matter- the merely natural, as the sub-rational, assumes negative status. It becomes a realm to be comprehended and organized by Reason” (Marcuse 10). By conquering nature, man is able to reduce its ferocity and re-create it in a more rational way, seen in parks and reservations, which allow humans to coexist with and ‘appreciate’ its positive attributes. Within the ideology of what Marcuse calls ‘absorption of the negative by the positive’, the ‘positive’ tranquility and delight resulting from the ‘negative’ transcendence and transformation of nature transpires from fear of nature as an opposing force as well as human’s desire to express their autonomy. This transformation of nature has created a false sense of connection with the world, while maintaining the dualism of civilization vs. nature.

These motivating forces drive all instances of dualistic dominance of humans over non-human nature, which lead to deleterious effects for both parties. The historical regularity and repetition of this instrumentalization creates a ‘field’ in which such behavior is accepted and

subconsciously transmitted to the ‘habitus ‘of individuals, who uphold the same ‘field’ conditions.

CHAPTER THREE

Perpetuation of the Civilization/ Nature Dualism through Architecture

3.1 Architecture as an Expression of the Primary Dualism

As a primary mechanism for physically (and thus, socially) constructing civilization, architecture, in theory and practice, has **historically** demonstrated environmentally destructive actions resulting from its absorption and proliferation of the civilization/nature dualism. The following statistics taken from the Environmental Protection Agency's Statistical Summary of Buildings and their Impact on the Environment in 2009 highlights some of the environmental consequences of the building sector:

1. Nearly 4.9 million office buildings existed in 2003 in the U.S. Every year, approximately 170,000 commercial buildings are constructed, and nearly 44,000 commercial buildings demolished (U.S. Department of Commerce).

2. Buildings accounted for 38.9 percent of total U.S. energy consumption in 2005. Residential buildings accounted for 53.7 percent of that total, while commercial buildings accounted for the other 46.3 percent (Buildings Energy Databook).

3. Buildings accounted for 72 percent of total U.S. electricity consumption in 2006 and this number will rise to 75% by 2025. 51 percent of that total was attributed to residential building use, while 49 percent was attributed to commercial building usage (Buildings Energy Databook).

4. Buildings in the United States contribute 38.9 percent of the nation's total carbon dioxide emissions, including 20.8 percent from the residential sector and 18.0 percent from the commercial sector (U.S. Department of Energy).

5. Building occupants use 13 percent of the total water consumed in the United States per day. Of that total, 25.6 percent is used by commercial building occupants, and 74.4 percent by homeowners (U.S. Geological Survey).

6. Building-related construction and demolition (C&D) debris totals approximately 160 million tons per year, accounting for nearly 26 percent of total non-industrial waste generation in the U.S. Combining C&D with MSW [municipal solid waste] yields an estimate that building construction, renovation, use and demolition together constitute about two-thirds of all non-industrial solid waste generation in the US (U.S. Environmental Protection Agency, 2003).

Architecture has become an anthropocentric, big business profession, championing growth and progress, and has allowed building form, quality, and performance to be dictated by a search for profit. On this, architect Richard Rogers wrote:

> "After a century of refinement, the steel or concrete building has never been so cheap to build, nor built so cheaply. These barren structures, with their classical, neo-vernacular or modern facades chosen as if from catalogues, have no allegiance to place nor people. Buildings of all types are packaged and standardized; architects are selected for their low fees rather than for the quality of their work. The profession is condemned to turning out the largest enclosure for the least money in the shortest time and to dressing its facades in one 'bolt-on' style or another. These buildings are the energy-guzzling structures that are consuming half of the world's annual energy" (Rogers 68).

The civilization/ nature dualism has led the practice of architecture so far from harmony with the natural environment, that building can no longer serve their fundamental purposes. Despite the realities of pending catastrophes, environmental degradation through building processes is not the primary concern; it is first necessary to examine the root causes of these harmful actions, to fully understand the scope of their consequences.

3.2 Roots of the Primary Dualism in Architecture

Architecture has been used as a tool to tame and control non-human nature, expressing all of the fundamental roots of the dualism itself: desire for autonomy, fear of nature, and the mind/body dualism. The following section will outline contemporary architecture's contribution to the dualism through these foundations, and suggest them as causes to architecture's continued instrumentalism of the natural environment.

3.2.1 Desire for Autonomy in Architecture

The desire for autonomy, which contributes to the civilization/ nature dualism, is expressed in the architectural profession as the architect's *perceived* dilemma to choose between expressing his creative vision and addressing the site and user's needs. This sentiment is reflected in the statement: "art, which needs autonomy to flourish, can only be diminished by the demands of utility" (Spector 97). Many architects believe that, as artists they are obliged to stand

up for the values of art and compromise those of life, but are hesitant to admit what repercussions this may have. In his article, "A Conflict between Art and Life?," Robert Maguire said, "We are a confused profession, profoundly and exceptionally well-intentioned, yet guilty-feeling and defensive about our effects; and a large measure of our confusion is, I believe, due to the fact that few of us now wish to venture as far as saying in just what the art of architecture lies, and how the 'doing' of it relates to a concern for the lives of people" (Maguire 122). Many architects are apprehensive to acknowledge the full spectrum of health and environmental repercussions their aesthetic decisions have, instead choosing to address only a limited number of concerns while marketing themselves as 'sustainable' to the public. Unfortunately, this creates a false sense of 'sustainable' architecture: small changes that don't challenge the dualistic civilization/ nature paradigm enough to elicit an actual shift.

Additionally, the architectural practice has increasingly championed avant-garde, risk-taking work without fully examining the negative moral and functional consequences of the architecture-as-fashion paradigm (Spector 91). Thus, highly publicized works such as Frank Lloyd Wright's Guggenheim Museum in New York City continue to be praised despite very obvious functional oversights. In the case of the Guggenheim, the museum is full of functional dissonance such as paintings hung askew to the floor planes and lack of proper lighting (Spector 92). The Farnsworth House by Mies van der Rohe, an open-plan glass box situated in an empty field, is another example of a functionally inappropriate yet celebrated architectural masterpiece. The house forces the resident's life to be uncomfortably showcased as they are unable to see out of their own windows at night, but are fully vulnerable and visible to outsiders. The fact that these works are still admired indicates the acceptance of the architect's desire for autonomy (in the form of unfettered creative expression) and the media, profession, and general public's

celebration of aesthetics over appropriateness. The mental compartmentalization of mutually important architectural considerations enables the dangerous position that "we should not have to be distracted by whether the building is profitable, or has a persistent roof leak, or is made from steel that comes from a nation engaged in unfair dumping practices when considering it aesthetically, unless these conditions intrude upon our ability to do so" (Spector 94). Architects who prescribe to this dilemma, unfortunately reinforce mutual exclusivity of aesthetics and realistic concerns: "Concerns for the well-being of each person affected by a building will undoubtedly take away time and effort that could otherwise be devoted to artistry. If the architect lacks fortitude, his or her vision will be crushed by accommodating concerns about a building's effects on its inhabitants, neighbors, community, and environment" (Spector 97). Valuation of aesthetic agendas over others anthropocentrically represents the higher value given to civilization and the mind, which aims to transcend more corporal considerations, such as functional needs and the building's impact on the environment: the mind/body, civilization/ nature dualism.

A strict moralist position, which subordinates aesthetic consideration to the moral realm and thus, forbids buildings with obvious functional shortcomings, is not widely accepted among architect because it is perceived that concern for morality (design regulations, public concerns, contextual sensitivity) "tame[s] a strong design concept into something that is too nice to be interesting" (Spector 97). Rogers calls this approach the "antithesis of sustainable thinking" as it disregards long-term destruction in exchange for short-term recognition and profit. Despite the current paradigm, it is the responsibility of the architect to "go beyond the limits of an autonomous brief" for architecture to once again contribute to social and environmental sustainability (Rogers 68-9). Isolating and championing his/her ideas over other needs reflects a lack of holism in the design process. If an architect cannot mutually consider personal

autonomous concerns with those of external factors, s/he embodies the same kind of anthropocentric, dualistic thinking that perpetuates the distinction between human civilization and non-human nature that drives environmental degradation. The architect's pursuit of individual over group is a small-scale example of the inability to see the interconnection between the self and the larger community, thus, this architect is likely to overlook the oneness of humans as part of the larger biotic community. If you cannot empathize with persons, how can you empathize with non-persons?

The architectural dilemma associated with iconic aesthetic is more typically characterized by the buzzword "starchitect", today typified by the names and shapes of Frank Gehry, Daniel Libskind, Rem Koolhaas, and Zaha Hadid. A starchitect is an architect easily identifiable by a name, face, or book, associated with innovative shapes, surfaces, and/or concepts that are made public through corporate-like marketing. The starchitect has created the popularized belief "that the archetype of architecture as art is the individual building seen as a jewel, in isolation, and above all as a manifestation of style"(Maguire 126). Often, their buildings become more famous to the general public than the individual themselves, the style itself becoming a recognizable brand (McNeill 62). One cannot mistake Gehry's organically contoured ship forms made from titanium panels or Zaha's horizontally sleek structures that tear across the landscape. The starchitect's brand alone has power to boost the cost of an apartment complex or prestige of a public building through the association of a lifestyle with his or her aesthetic: "To lure prospective buyers into ownership of one of the myriad condominiums available to them, marketing teams have set up elaborate sales centers replete with full-scale mockups of the dwelling units, videos meant to educate the laity about the significance of the starchitect whose brand they are about to support, and freebees contributing to the cult of personality surround the

marketing of these luxury commodities…These starchitect-branded condos exude more than good design; they become signifiers of an entire lifestyle" (McNeill 77). Author Donald McNeill, rightly compares starchitects to Hollywood celebrities, who are elevated to a certain status and marketed as possessing distinctive characteristics (McNeill 64). They hold the image of individual heroes and geniuses, as seen in Ayn Rand's novel, *The Fountainhead*, in which young architect, Howard Roark (based on architect Frank Lloyd Wright) is depicted as having unblemished integrity, vision, and courage. His character sought complete independence and originality, even bordering on selfishness.

This egoistic view of starchitects is maintained today, resulting in the problematic backgrounding of other architect's contributing work, and disregard for the user's needs, the natural environment, and local communities. Architecture has been characterized by individualism in the public eye more than any other element of the profession. This is evident through awards given to particular buildings (aesthetics), general progress in architecture associated with style (a personal conception), the judgment of a building's success based on alignment with the architect's individual concept, and valuation of buildings based on supporters of the individualistic paradigm— architectural critics and architects themselves (Saint 1983 6). This individualized view of architecture is an expression of Nietzsche's "Will to Power" and Steven Sangren's distinction of autonomy as the ultimate root of desire.

In the article, 'Masculine Domination', P. Steven Sangren claims that cultural categories are *produced* through the human commonality of the 'Instituted Fantasy' of radical autonomy or omnipotence. Sangren uses the example of Chinese patriliny, in which the Chinese ancestor worship and imperial ideologies use fantasies of self-productivity or power. The son produces his father figure as a symbolic transcendent figure, whose most important attribute is to produce the

son himself, as patriarch. Thus, through the son's elevation of his father to divine ritual power, he has become his own self-producer (Sangren 146). Freud's term 'the omnipotence of thought' reiterates this same 'narcissistic' desire in that it "fantasizes the subject/ agent's omnipotence even to the point of producing itself" (Sangren 146). The desire for autonomy first arises when the infant understands there are resistances to his/her own desires constituted by the fact that the world encompasses others who have competing desires. Thus, the infant must learn to repress his own "egocentric or narcissistic impulses" in order to "accommodate social realities" (Sangren 147).

Architecture strongly represents institution of the universal fantasy for autonomous expression of self, because it is a practice in which the lead architect is able to see a direct part of his mental self realized in physical space. Architects want to "see themselves not only as top dogs in the construction process but also as creators and romantics, heirs to a tradition that offers them a chance of fame and remembrance from posterity" (Saint 1983 6). Architecture allows, and even celebrates, the free expression of the creator's egotistical human nature, granting him radical omnipotence, and in a way, allowing him to be his own self-producer. This desire for autonomy and recognition justifies and drives the prevailing star architecture system, dominating the current architectural paradigm and naturalizing all of the negative consequences that come with it. As an expression of autonomy, star architecture maintains hierarchical and dualistic thinking parallel to that found in the civilization/ nature dualism, continuing harmful behavior through the elevation of individual aesthetic and concept above all else.

3.2.2. Fear of Nature in Architecture

The previously described fear of non-human nature has manifested through architecture as a mechanism of physical control of natural forces and threats. Of the 'primitive hut,' 18th

century theoretician, Abbe Marc-Antoine Laugier, wrote that the first structure was not the tent, but a hut made by men to stand outside of nature as a defense from the natural elements. Its purpose was to replace nature with an alternative culture and to shield man from the forces of wind, rain, wild beast, and other feared unknowns. The 1924 distopian novel, Eugene Zamyatin's *We*, comments on modern society's separation from non-human nature through built form; protagonist, D-503, states, "'Man ceased to be a wild animal the day he built the first wall. Man cased to be a wild man only on the day when the Green Wall was completed, when by this wall we isolated our machinelike, perfect world from the irrational, ugly world of trees, birds and beasts'" (Weisman 88-9). Zamyatin's extreme depiction of a 'machinelike' state physically separated from the outside world of 'birds and beasts', metaphorically reflects the civilization/ nature dualism that was growing, boosted by the industrial revolutions and scientific advances, at the time the book was written. In modern contexts, the extremity of the tightly sealed building envelope has completely isolated human controlled interior environments from natural environments. This has led homeowners and building managers to ignorantly over-condition spaces without insight or regard to the external forces, wasting energy and perpetuating the user's failure to recognize the relationship between their everyday lives and non-human nature.

3.2.3 The Mind/Body Dualism in Architecture

The celebration of the human mind over the corporal world has justified the human domination of non-human nature. This dualistic separation is evident in the institution of architectural practice in the form of championing processes of the mind, such as aesthetics and theory, over the practical problems of building. The most oppressive of these mental systems is the notion of style. In the Beaux Arts tradition, architecture schools taught principles such as

balance, proportion, rhythm, and scale, which allowed the architect the opportunity to incorporate these principles into his or her greater aesthetic with consideration of additional external factors (Maguire 122). Conversely, the late Modern Movement proposed whole concepts. A great modern building could only be achieved through adherence to a series of externalized concepts such as nature of materials, expression of structure, and an external expression of a building's program (Maguire 123). These strict guidelines demonstrate the championing of the human mind, as isolated mental concepts were used as the determining force of a building's success or failure. The resulting fragmentation of the architectural profession with styles (classical, gothic, etc.) showcases human tendency to rationalize and compartmentalize architecture as an expression of the human mind. Even postmodernists and deconstructionists, who often resist themselves as prescribing to a set of principles, are contributors to an ideology, or image, of practice. Each ism has its own conceptual rules and overarching themes that celebrate ideas over real world problems. A sure sign of ideology is the disaffirmation of all other beliefs different from its own. Postmoderism claims modernism to not stand outside history any more than any other human pursuit, whereas deconstructivism criticizes modernism and postmodernism for perpetuating old antagonisms that need to be discarded to liberate culture (Spector 188-9). The inability for each strain of architectural theory to release the presumption of their achievement of a universal truth demonstrates architecture's egotistical attachment to the mental systems reflective of the mind/body dualism. As seen in the aforementioned discussion on *desire for autonomy* in architecture, architects consumed by the conceptual forces tend to overlook real world problems, leading to problematic results of buildings that do not properly respond to context, user, or broader social/ environmental issues. These buildings made solely

from the human mind in isolation from reality are the architecture profession's primary source of environmental and social degradation.

An additional justification for architecture's glorification of the mind can be seen in its expression of rationality, sought to oppose wild non-human nature. Contemporary Architecture manifests the ideals of the Industrial Revolution beginning with the introduction of new materials such as steel frames and concrete that radically revolutionized the possibilities of architectural design and construction. This reliance on technology as fundamental manifestation of the mind/body dualism was critical in enabling development such as the international style and continues to drive new forms of architecture seen in deconstructivist and blob forms. The International Style of the 1920's aimed to achieve rationality through aesthetic expression of clean, minimalist, low cost buildings that would reduce the stratification of housing options between the wealthy and the poor. Despite its positive social intentions, it achieved this rationality through new technology that was harmful for the environment and was void of social and contextual sensitivity. Large sheets of glass, steel, concrete, and cheap transportation powered by fossil fuels were used to erect these buildings across the globe (McDonough 2002 28-9). Evolution of the International Style's initial intentions has led to it become a mere aesthetic associated with "bland, uniform structure isolated from the particulars of place—from local culture, nature, energy, and material flows" (McDonough 2002 29). Like other styles, this desire for order fragmented a broad view of architectural considerations, singularly narrowing on one objective and overlooking the importance of spiritual relation to the people and places of a building.

The rationalization of the built environment through mental representation failing to address real world issues and the integration of technology has widened the gap between human

civilization and non-human nature. And although the most primitive separation of civilization from nature may stem from a desire to control feared opposing forces, the championing of the rational mind over the corporal body, influenced by a desire for autonomy shifts the motives from protection to domination. The distinction between civilization and nature, embedded in the 'habitus' of architects under the current paradigm, problematically defaults to destructive, anthropocentric decisions as norm, which continue to reflexively reproduce the existing 'field'.

Unfortunately, the primary dualism between civilization and nature has not only affected non-human nature. It has led to subsequent harmful dualisms, among humans, maintaining the objectification of minority groups through time and cultures. Plumwood (2007) asserts, "an anthropocentric culture will tend to adopt concepts of what makes a good human being which reinforce this discontinuity by devaluing those qualities of human selves and human cultures it associates with nature and animality in the human self, and often also to associate with nature inferiorised social groups and their characteristic activities, real or supposed" (2007 257). This pattern has been evident in the oppression of slaves, 'barbarians', and women through their socially given lower "animal' identification with characteristics like embodiment and emotionality, viewed as primitive by higher ranking members of society (Plumwood, 2007 255). The following chapter will introduce how women, due their biological reproductive functions, have been associated with nature and men with civilization (a resulting problematic secondary dualism), unfortunately leading to parallel results in the objectification and instrumentalization of women similar to that of non-human nature.

> Human and non-human struggles and ethics are thoroughly interlinked because when we hyper-separate ourselves from nature and reduce it conceptually (in order to justify domination), we not only lose the ability to empathize and to see the on-human sphere in ethical terms, but also get a false sense of our own character and location that includes an illusory sense of agency and autonomy—which are thus in turn a prudential hazard (Plumwood, 2007 261).

CHAPTER FOUR

The Secondary Dualism: Women as Nature, Men as Civilization

4.1 Women as Nature, Men as Civilization

The civilization/ nature dualism described in Chapter 2 sets the groundwork for understanding a second level of hierarchies, which assigns gender roles to the two sides of the civilization/ nature dualism. Embedded in social institutions of western cultures throughout history, men have been associated with the realm of civilization and women with the realm of nature. This secondary dualism, which will hence force be called the *civilization: male / nature: female dualism*, has relegated women to a subordinate role through society's previously described hierarchical valuation of the mind as superior to the body and civilization as superior to nature.

The female association with nature is evident in art, literature, religion, and theology, using sexist and naturist language that inferiorizes nature and women. Women are described as animals (cows, foxes, chicks, serpents, bitches, beavers, old bats, pussycats, cats, birdbrains,

harebrains), while nature is conversely described in gendered terms (raped, mastered, mined) (Warren, 1996 xv). Though women are subordinated through their partnership with nature, the downgrading of nature has been equally perpetuated through its representation as female, creating an unfortunately oppressive situation for both lower ends of the dualisms. Kate Soper (105) describes nature's femininity as:

> All things that women are, her sexuality everything it has been said to be: tender and nurturing, alluring and gratifying, irresistibly but dangerously compelling, formidably cold and voraciously hot. Her hills and downlands are the soft curves of bosom and thigh, her streams and rivers delightful clefts and sources of fertility. Yet her jungles and forests may prove impenetrable, her arctic zones repellently frigid, her bogs and morasses all too engulfing. And though she does 'unveil' herself to her explorer, her charms are not always what they first appear to be, and if tampered with too far or too clumsily she is well known to turn very ugly indeed.

The ubiquitous gendering of our planet as 'mother earth' is the most evident example of the ascribed relationship between women and non-human nature. However, evidence of their comparisons still does little to explain the reasoning behind the roots of the dualism. Understanding the roots is important because gender assumptions, which naturalize women's connectivity to nature, define social roles that confine women and men to different realms of societal behavior. Traditional matriarchal societies included "kinship, egalitarianism, and nurturance-based values which women experienced and projected not only on their goddesses but on to every creature among them. By contrast, when men invented their gods, they projected on to them isolated individualism, hierarchical relationships and power-based values which are reflected in patriarchal social arrangements" (Collard 8). The historical and mythical association of various attributes with men and women again represents women in a more environmentally connected position and men in a culturally constructive position. Interestingly, from a feminist

perspective, this criticizes men for creating all of the problems arising from human civilization, leaving women scot-free:

> Man named himself by an act of separation from and power over nature, animals and women, ensuring his pre-eminence through owernership of all. The house (*domus*) and its holdings (*familia)* are now his to protect and defend. He is lord (*dominus*), he dominates, he domesticates. This means that nature is no longer treated as a complex of self-regulated organisms under a 'law' of communal kinship but is brought under *the* law of one king, the single ruler of monarchy and monotheism. Responsibility (ability to respond) gives way to obligation as ethics become arbitrary—functions of will, rather than principles arising from reality. Thus good and bad give way to standards of right and wrong to which it is politically dangerous not to conform (Collard 26).

Obligation to abide under the constructed male paradigm and resulting compliance with domination has reproduced hierarchical gender roles again and again. It is evident that human civilization has separated itself from the natural environment through a quest to dominate it and reign superior, but the association of men with this human domination is yet to be explained. Are men really the only gender to blame for the perpetuation of civilization's anthropocentric oppression of non-human nature? The essentialist claim that presupposes women a natural way of kindness, nurturance, and connectivity without convincing evidence (besides a replication of a pre-embedded ideology through myth and social institution) creates confusion, and must be further explored. As a biological explanation cannot be justified without evidence of a formulating premise, it is critical to understand how women have become socially affiliated with the realm of nature and why this has led to their oppression and the continued oppression of nature.

Western civilization's desire to conquer nature (due to the influences described in chapter 2) set the groundwork for the hierarchical relationship between men and women, as women have been associated with the subordinate entity, nature. In the article, "Is Female to Male as Nature Is to Culture?," anthropologist Sherry Ortner argues that the objective reality of female

subordination in all societies is due to the universal association of males with culture and females with nature. She claims that this association is universal, in that all human beings have a "physical body and a sense of a non-physical mind, [and] is part of a society of other individuals and an inheritor of a cultural tradition, and must engage in some relationship, however mediated, with "nature" or the non-human realm, in order to survive" (Ortner 10). Women are labeled as a symbol of nature, which every culture devalues as a lower order of existence than itself, due to the previously described universal human desire for autonomy. Because humans find themselves capable of conscious systems of thought and technology that generate systems of meaningful forms (symbols, artifacts, etc.) outside the givens of natural existence, they believe humans have the superior ability to transcend— "socialize" and "culturalize"— nature (Ortner 11). Although Ortner recognizes that women are not biologically linked to nature and are still active participants in social processes, she believes they are more closely associated with nature than men due to the procreative functions of women's bodies, which are more similar to 'species life' and certain social roles that are considered a lower order of culture (i.e. mothering). Selfless bodily functions such as procreation, nursing, and menstruation place women in traditional social roles that then give them a different psychic structure thought of as more closely linked to nature. Thus, physiology is a critical limiting factor for women (Ortner 12). However, as both men and women have historically celebrated the triumph of civilization over nature, women have unfortunately also accepted their position of inferiority.

Patriarchy is supported through the processes of reproduction, in which men's occurs outwardly through cultural production and creativity, and female's is limited to biological reproduction (Soper 91). The meaning of women is thus reduced to biological functions, creating the view that she should not participate in war, trade, or politics (Kronlid 16). Because men have

been given more cultural productive power due to women's subordinate identification with nature, he was granted the rights to oppress and dominate the natural environment. If the roles were reversed, it could be argued that women would treat the environment similarly. Women's self-identification with more nurturing, nature-oriented characteristics has only resulted through reflexive social reproduction of their given position, as described by Bourdieu's 'field' and 'habitus'.

Men and women *are* different, but not more biologically different from one another then humans are from anything else (i.e. mountains, kangaroos, etc.). Feminist Gayle Rubin presumes the idea that women and men are two mutually exclusive categories is derived from something other than a nonexistent "natural" state of opposition; it is the "suppression of natural similarities" and requires the suppression of the personality characteristics of both men and women (Rubin 180). Thus, men and women have been naturalized to fulfill particular roles, which have been replicated through gendered patterns embedded in institutions. This reflects Simone DeBeauvoir's anti-essentialist belief that all individuals are born free without essence. But socially constructed gender identified with biological sex, defines personhood as men and women accept and live by the role that society defines as appropriate. Reframed by Sangren (142), Ortner appropriately stated:

> [women are] not 'in reality' any closer to (or further from) nature than [men]—both have consciousness, both are mortal. But…the result [of the cultural association] is a (sadly) efficient feedback system: various aspects of woman's situation (physical, social, psychological) contribute to her being seen as closer to nature, while the view of her as closer to nature is in turn embodied in institutional forms that reproduce her situation.

The dualistic situation is normalized through the reproduction of this ideology embedded in institutions, such as the professions, education, space, etc, which act as Bourdieu's 'fields'. Thus, the woman adopts a reflexively constructed 'habitus', such as identifying with nature or fulfilling

a nuclear role as an oppressed housewife that encodes her identity, disenabling the possibility of her situation to change.

4.2 Ecofeminist Analysis of the Secondary Dualism

Environmentalists reject the view of nature as bestial and something that must be controlled and dominated, while feminists reject the view that women are naturally inferior to men (Mellor 67). Ecofeminism, a feminist theoretical strain, is a useful conceptual tool to discuss the related issues of environmental and gender oppression. Ecofeminists believe there are fundamental similarities among the many structures of oppression, and seek to give a voice to those that are omitted or undervalued in dominant discourses. The ecofeminist perspective is "'pluralistic, inclusivist, and contextualist'" (Gaard 31). Compared to liberal feminism, which frames women as unequal in a functional system and aims to allow women inclusion into that system, ecofeminism fundamentally questions the instituted racism, poverty, and environmental degradation embedded in the current paradigm, which has come to be associated with men (Gaard 33). However, two approaches, following difference and equality feminist positions,

create radically different ways to interpret ecofeminism. The first, *cultural ecofeminism*, champions a so-called women's ways of knowing, blaming environmental destruction and oppression of women solely on men and promoting women's ways as the path to positive change. While the second, *social ecofeminism*, blames environmental destruction on dualistic thinking, which socially isolates civilization from non-human nature, and blame women's oppression on the association of women with the oppressed natural realm. The underpinnings of this study theoretically identify with the later, which calls for a systematic transformation of structures between civilization and nature and males and females.

4.2.1 Cultural Ecofeminsim- A Difference Perspective

Cultural ecofeminist analyses of the causes of and solutions for the environmental crisis are based on the use of feminine principles of care, such as nurturance and connection to combat domination and destruction of nature caused by male rationality and technocratic values (Kronlid 13). This difference feminist perspective champions the isolation of women to the realm of the natural by claiming and celebrating 'inherent' differences. The cultural ecofeminists aim to reverse the value in the civilization/man: nature/woman dualism so that attributes associated with femininity are conversely valued over male attributes through goddess culture, earth-based spirituality, and bioregionalism. In her promotional pamphlet for Gylany Greens, Anne Goeke, board member of Voice for Choice Coalition, and longstanding member of NOW (National Organization for Women, The Women's Environmental and Development Organization (WEDO), and Co-op America, celebrated positive gender traits considered feminine:

> freeing, holistic, gentle, peaceful, embracing, reverence, nature, flexible, share, lateral, connecting, softness, meditation, empowering, peace, spiritual, coalescence, soul, encouraging, enhance, courtesies, warmth, encompassing, permissive, song, consensual, heart, nurturing, sensual, vulnerable, emotion, lovingness, kind, balance, forgiving, ecological, empathic. Spherical, futurist,

> cooperation, respect, indigenous, supportive, spontaneity, third world, harmony, holistic, participation, wisdom, [and] flowing (Gaard 173-4).

Efforts promoting these traits are conventionally more connected to personal, social, and cultural transformation rather than political, legislative, and economic transformation (Gaard 146). However, the 1984 founding meeting of the US Green Party committee of correspondence had 62 people involved in determining a direction for the US Green movement, who decided to include ecofeminst principles into their party's philosophy. Spearheaded by Charlene Spretnak, they elaborated on the existing four pillars of the West German Greens (ecology, nonviolence, social responsibility, and grassroots democracy) to include ecological wisdom, nonviolence, personal and social responsibility, grassroots democracy, Decentralization, community-based economics, post patriarchal values (feminism), respect for diversity (racial equality), global responsibility, and future focus (Gaard 142). They criticized an old paradigm in promotion of a new paradigm and assigned gender roles to each of these categories, posing a matrifocal paradigm as the intended direction of their desired goals (Gaard 144). The matrifocal paradigm included concepts of "unity, cooperation, community, diversity, multiplicity, long-term, eco-centric, emphasis on process ("the means embody the ends"), bottom-up or empowerment (grassroots democracy for local communities; consensus decision making within the community), inclusive, and concern for others" (Gaard 144). The male paradigm conversely included concepts of "hierarchy, conflict, competition, autonomy, separation, individual, public, short term, emphasis on outcome ("the ends justify the means"), and top-down or "majority rules" decision-making" (Gaard 144). Like many radical feminists, Spretnak believed patriarchical male domination over women to be the root cause of all other dominations, thus by ending women's oppression through valuation of all things associated with 'feminine', they will

end all other oppressions as well. However, this study conversely argues hierarchical valuation of civilization over nature to be the root cause of human oppression (i.e. male over female).

Carol Gilligan used Nancy Chodorow's definition of feminine identity as self-in-relationship to observe how the reaction to moral dilemmas differs among men and women. She found that women and girls have a 'reflective understanding of care' and do not want anyone to get hurt, while men are more concerned that everyone is treated fairly: 'ethics of care' vs. 'ethics of justice' (Wright 46). Nancy Hartsock, author of *The Feminist Standpoint*, relates the development of male self-identity to the masculinist tendency to degrade everyday life and value abstraction. Masculinity is an ideal not related or supported by the home/ family life, but rather reached through escape into the massive public life. From a young age, boys are forced to dualistically view the world in one of two ways: valuable, if abstract and deeply unattainable and demeaning, if concrete and necessary (Frank, 2000 296). In contrast, she proposed seven qualities that characterize feminine or feminist ways of knowing/ analyzing:

1. An underlying connectedness to others, to objects of knowledge, and to the world, and a sensitivity of the connectedness of categories
2. A desire for inclusiveness, and a desire to overcome opposing dualities
3. A responsibility to respond to the needs of others, represented by an 'ethic of care'
4. An acknowledgement of the value of everyday life and experience
5. An acceptance of subjectivity as a strategy for knowing, and of feelings as part of knowing
6. An acceptance and desire for complexity
7. An acceptance of change and a desire for flexibility (Frank, 2000 297).

However, the cultural ecofeminist analysis can be described as essentialist in that it does not provide the opportunity for men to be included in a connection with non-human nature, and maintains oppressive gender dualisms that continue to subordinate women and the natural environment. Perpetuation of this dualism, through names such as "Mother Nature" or "Mother Earth" do not promote environmental awareness, but "instead help to maintain the mutually

supportive, exploitative stances we take toward our mothers [women in general] and toward our environment" (Roach 52). In patriarchal culture, "Mother" is "she who satisfies all of our wants and needs endlessly and without any cost to us. Mother is she who loves us and will take care of us no matter what" (Roach 55). This association problematically allows us to believe there are no consequences to our actions and the earth is all loving and forgiving. Additionally, although these comparisons empower women in the home, it still subordinates women as compulsory caregivers due to the fact that culturally the male not-caring has been a source of male power (Gaard 20). Mothers have become the unpaid workers of the world (housework and childrearing not recognized or appreciated by society)—we need to have mothers AND fathers equally share that work (Roach 54). Thus, as Rosemary Radford Reuther writes, we need to "'convert the relations of patriarchal domination for both women and men into new relationships of mutuality" independent of assigned gender roles (Mellor 76).

4.2.2 Social Ecofeminism- A Non Dualistic Perspective

Conversely, this study comes from the social ecofeminist perspective, commonly associated with theorists, Carolyn Merchant, Vandana Shiva, Maria Mies, Chaia Heller, and Karen Warren. This perspective doesn't aim to determine what women are or what unique characteristics they have, "but how dominant power perceives them and manipulates structures to exclude, violate, dominate…and to see how closely the attitudes toward women are related to attitudes toward nature, and how the violence against women and the ecological crisis mimic each other all the time, in each period anew" (Gaard 42). This examines capitalist patriarchy and how patriarchal relations of reproduction reveal male domination of females and capitalist relations of production reveal domination of nature by men. Likewise, it analyzes real world manifestations of these oppressions in mal-development of underprivileged countries due to

multinational corporations and global stratification of wealth, as this study seeks to investigate in the architectural profession. (Gaard 42). In an April 1989 Left Green Network conference in Ames, Iowa, the party declared social ecofeminism as one of their founding principles, rejecting the misconceptions of women as more related to nature, thus outside culture: "social ecofeminism regards women as cultural beings, as well as biological beings, and seeks to understand and change the social realities of the relationships between women, men, the political realm, the domestic realm, and all of these to nature" (Gaard 158). Social ecofeminsm seeks to understand the true relationships between layers of domination rather than perpetuating dualistic thinking through a celebration of the 'feminine'. This understanding will hopefully lead to a redefinition of relations and a new non-dualistic paradigm that allows both men and women to reclaim connection with non-human nature.

Ecofeminst Karren Warren believes an oppressive conceptual framework called the "logic of domination", which is comprised of value-hierarchical thinking and value dualisms, justifies the relationships of domination and subordination between both civilization and nature and men and women (Warren xii). Superiority in this case is socially determined through a certain characteristic (e.g., rationality), which the dominant (e.g., men) have and the subordinate (e.g., women) lack (Warren 21). Value-hierarchical thinking and value dualisms place higher value on one side of the dualism over the other, which in turn, justifies the subordination of the lesser valued (Warren 20). For example:

> Consider the claim 'Humans are different from plants and rocks in that humans can (and plants and rocks cannot) consciously and radically reshape the communities in which they live: humans are similar to plants and rocks in that they are both members of an ecological community.' Even if humans are "better" than plants and rocks with respect to the conscious ability of humans to radically transform communities, one does not *thereby* get any *morally* relevant distinction between humans and nonhumans, or an argument for the domination of plants and rocks by humans. To get *those* conclusions one needs to add at least two powerful

> assumptions… Whatever has the capacity to consciously and radically change the community in which it lives is morally superior to whatever lacks this capacity [and]… For any X and Y, if X is morally superior to Y, then X is morally justified in subordinating Y (Warren, 21).

Unfortunately, society *has* made those assumptions and treated nature in opposition to civilization in a value dualism. Subsequently, Warren argues the oppression of women can be accounted to the following argument related to the domination of nature:

> (B1) Women are identified with nature and the realm of the physical; men are identified with the "human" and the realm of the mental
> (B2) Whatever is identified with nature and the realm of the physical is inferior to ("below") whatever is identified with the "human" and the realm of the mental: or conversely, the latter is superior to ("above") the former.
> (B3) Thus, women are inferior to ("below") men; or conversely, men are superior to ("above") women.
> (B4) For any X and Y, if X is superior to Y, then X is justified in subordinating Y.
> (B5) Thus, men are justified in subordinating women (Warren 22-3).

Despite Warren's helpful explanation of the mechanisms behind women's social oppression through the 'logic of domination,' she does not fully address the fundamental problems of women's association with the natural realm. Though Warren does not allude to essentialist beliefs about women's innate connection with nature, instead taking a neutral position by stating women are "identified" with nature, she *accepts* that identification. Simply breaking hierarchical valuation of man over woman or civilization over nature does not solve the dualistic dilemma: that women are not inherently any more connected to non-human nature then men are, but have come to be so through socially constructed, and normalized, oppressive rules. To truly change the 'logic of domination' humans cannot simply remove the value prescribed to two separate entities: we must understand them as one in the same thing. The original association of women with the natural realm due to their biological functions overlooks men's connection to non-human nature as well; though men do not reproduce, menstruate, or breast feed, they have all other biological functions equal to women and in ejaculation they also give life (Roach 58).

Thus, investigating gender-based beliefs about sustainable design with a cultural-ecofeminist lens provides comparative frameworks (explanations of male and female paradigms) for analysis of results. However, the social-ecofeminst perspective provides the foundation to discuss gender dualisms' relation to the primary civilization/ nature dualism without accepting oppressive essentialist theories. This foundation allows us to conceptualize non-dualistic alternatives and imagine structures for a paradigm.

CHAPTER FIVE

Male and Female Architecture:
Challenging the Dominant Architectural Paradigm

5.1 The Male Paradigm of Architecture

As a symbol of cultural expression and reproduction, the practice of architecture reflects the dualisms relegating women and men to the separate spheres of nature and civilization through categorized forms, spaces, and architectural concepts. Examining these embedded dualisms raises important questions regarding socially constructed differences in gendered design approaches, and their resulting consequences. Do gendered associations with nature and civilization lead to differing results in male and female created designs? Do they lead to differing results in male and female created designs *regarding sustainability*? These questions are particularly relevant in light of the built environment's destructive potential toward the natural environment, the presence of the civilization/ nature dualism in the profession, and the prevailing situation of architecture as male dominated profession. Is there a connection between architecture's historical dualistic valuation of men over women and civilization over nature? This

chapter seeks to analyze gender dualisms in architectural practice, introducing feminist design approaches that are consistent with ecofeminist 'women's ways of knowing.' These similarities provide a foundation for the investigation of women's relationship to sustainable design.

Though diversity continues to increase within the architectural profession, gender inequality is evident on all levels of the practice from "rituals of legitimation, hiring, classification systems, lecture techniques, publicity images, canon formation, division of labor, bibliographies, design conventions, legal codes, salary structures, publishing practices, language, professional ethics, editing protocols, project credits" (Coleman xii). In 2010, still only 18% of all reported AIA members were female (The American Institute of Architects, par. 2). The architecture profession has been criticized as an 'old boys club' that does not have the place for women who chose to play the game differently then the dominant group of men. Even a woman not radically challenging the paradigm, Denise Scott Brown, partner and wife of Robert Venturi, was commonly overlooked as a contributor to their joint architectural projects. This caused her to put a clause at the beginning of their book, *Learning from Las Vegas*, stating that the work and ideas should be attributed to them both and that their work was collaborative. However, this clause was ignored (Scott Brown 258). Other female work, such as that of Margaret Macdonald's of the Arts and Craft Movement, and Eileen Gray of the 1930's was diminished by critics through reduction to the realm of decorative arts and interior spaces (Chaplin 131). However, feminist historian Beatriz Colomina noted that Le Corbusier, often compared to Gray, was envious of Gray's talents and liked to criticize and put down her work through letters and vandalism of her home (Chaplin 132). The depreciation of female architects to subordinate roles is due to society's tendency to place males in positions of power, even if the females are just as gifted.

Though women have been gaining recognition for their achievements in the last 40 years, the architectural profession remains a reflection of rationality, which champions the autonomous mind as separate from body, emotions, and values. As seen in Chapter 2, this dualism justifies the oppression of nature, and in Chapter 4, the associated oppression of women. The dominant architectural paradigm of rationality makes the problematic assumption that all thoughts are context-free and objective so that the author's rationality becomes universal and is in turn used to reinforce the societal norms favoring civilization over nature, which reflexively created it. When translated from the architect's 'objective' diagnosis of a design problem into built form, buildings become cultural symbols and reproducers of a prevailing ideology that is accepted as universal truth (Jos Boys 34). However, this abstraction and isolation becomes overwhelmingly problematic when faced with real world issues, such as the user's functional needs and environmental concerns, but these practicalities continue to be overlooked. Architects "subscribe to the 'mystique of the expert': individual practitioners are considered strong, independent, and all-knowing, having specialized knowledge unknowable to the lay person" (Martin 231). Considering men's historical association with the realm of cultural production and their dominance in the architectural profession, rationality in architecture can be described as masculinist. It is very difficult for women architects to establish the same credibility as experts, and if they succeed, often do so by prescribing to the same problematic male dominated paradigm that champions individual autonomy and the mind over the body.

Architectural forms have oppressed women and the natural environment for thousands of years. A recent example, the modern architectural movement, links rational to rectilinear, social order with mathematical order, and clean lines with progressive and modern. Each architectural description is characterized by strings of association to society and/or architectural form and then

given a binary opposition that seeks to reassert the dominant paradigm (Jos Boys 35). Reflective of Warren's 'logic of domination,' these associative concept chains are given positive or negative value and argued as true or false description of society and thus good or bad architecture according to the normalized prevailing constructs of the dominant paradigm (Jos Boys 35).

Further examples of embedded dualism in theory, practice, and physical form of architecture are evident in the association of certain spaces and forms with gender traits, favoring those associated with male over those with female. We turn to historical examples to illustrate this reality. The first creation of semi-permanent campgrounds in societies was through the weaving of available natural materials such as large leaves and bundles of grass. They were round, ovoid, or conical in shape in effort to maximize physical and psychological communication among the dwellers (Betsky 15). Conversely, Marc Antoine Laugier, the first modern architectural philosopher, refuted the tent to be the first structure. He described it as the 'primitive hut', which was made by men to stand outside of nature as a defense from the natural elements. It was a hut with 4 posts, modeled off of the temples of the Greeks, that established an abstract, man-made, vertical, orthogonal order separate from nature. Reflecting the elements of the dominant architectural paradigm, no women or society is mentioned in Laugier's story, just the individual will of man (Betsky 16). This illustrates the desire for autonomy that contributes to the conquest of civilization over nature, which is perpetually socially associated with the male gender through fulfillment of ascribed roles. Laugier's story was not in actuality reflective of historical truths, but rather influenced by pre-existing architecture that was embedded with sexual hierarchy (Betsky 16). His description is prominent in architectural theory, perpetuating the dominant male perspective.

In modern discourse described by Jos Boys (42), architecture is conceived of as "binary oppositions framing society as divided into (false) appearance and (true) essence, surface and depth…literally translated into…form as decoration (trivial, superficial, false, feminine) and structure/form (essential, honest, true, masculine)." These binaries build off the assumption of ultimate truth in rationality and the individual mind, which through gender dualisms is associated with the male group. Thus, historical architectural tradition has limited women to the realm of fashion and ornamentation in design. In a letter from France in 1665 describing his feelings on women in architecture, Christopher Wren described femininity's role in western architectural discourse as related to "fashion, capriciousness, play, artifice, frivolity, charm, delicacy, ornament, and masquerade" (Fausch 1994 43). Even Virtruvius's Book for of *The Ten Books* compares the simple doric column to "the strength and beauty of the body of man," the adorned ionic to a matron, and highly flourished corinthian to a young maiden (Fausch 41). The dualistic relegation of women to the sole realm of decoration isolated the female gender to a subordinate, non-productive role in the current paradigm of architecture.

The division between interior and exterior space has highly gendered associations, placing the man in the public eye, while the women is isolated to the domestic private space. Western culture associates cultural and intellectual activities, the power and aggression of cities with men, and the safe, domestic, close to nature mindlessness of suburbia with women (Weisman 12-3). Similarly, in Chinese culture, Yin is female associated with water, passivity, fear, while Yang is male associated with fire, directed upward, joyful and phallic (Weisman 12). Described by Betsky (xiv-xv) in sexual metaphor, "Women have wombs and men have penises; ergo, women protect and men project…The split between projection and protection is not a fact of nature. It is a fact of man. It is the result of millennia of oppression of women by men…It

means that we all inhabit two worlds: one of projection that is artificial, abstract, and male; the other of protection that is sensual, informal, and female." Here Betsky reinforces the argument that these dualisms are not biological, but socially constructed through the determination of women as closer to non-human nature and the 'logic of domination' that legitimizes it. Thus, as cultural producers, men are associated with large scale, public buildings, while women are associated with more warm, sheltering, and nurturing spaces indicative to their relegated role of biological reproduction (Betsky xiv).

The sexual affiliation with interior and exterior is extended into architectural form through phallic and womblike symbols, socialized with associative genders through architectural discourse. The most evident male symbol is the American skyscraper representing the big, erect, and forceful power of patriarchy—architects have even named the parts a "base", "shaft" and "tip". The house has been associated with feminine terms such as "birthplace," a "cozy nest," a "sheltering womb," and a "vessel for the soul" (Weisman 16). Beginning as an erection symbolized by the obelisk that stands at one end of the street, and ending in the Louvre, a symmetrical, rigid structure that dominates a large court without regard to the natural site, the Champs-Elysees in Paris, France is a superb example of the described male space (Betsky xi). The related female space is left to secondary parks that wind like labyrinths rather than face the visitor as a bold, single image: "here culture reigned, people drifted in and out, wares were once sold, and men could find prostitutes" (Betsky xii). In the ancient civilization of Mesopotamia in the city of Ur, an architecture of exclusion and abstraction, realized in massive walls with vertical grooves and pilaster lines that emphasized verticality and power was predominant, while interior spaces were unknown and exclusive (Betsky 21). In Egypt, the Ancient Pyramids were expressions of power for dead males that were abstract and inhuman in scale (Betsky 26-7).

Females were relegated to the space in the home or in between buildings that engaged the daily activities of life, such as washing or getting water: "the streets in the cities that women actually used, as opposed to the ceremonial axes, were defined by function more than by abstract principles. The space of women was not a place of appearance, of representation, of fixed principles. It was a flexible accumulation of areas that responded to the needs for shelter, child rearing, eating, sleeping" (Betsky 31-2). However, the supreme example of male architecture existing outside of nature was created by the Greeks, who isolated iconic works of architecture from vernacular, everyday life through the exaltation of pure thought, as seen with the removal of the Acropolis in Athens from the city proper (Betsky 36). The association of male with orthogonal forms, geometric plans, phallic symbols, and rationality in architecture is due to male association with civilization rather than nature, and the foundational championing of civilization over nature.

The social construction of male and female understandings of space is evident from very young ages. In a 1965 study "Genital Modes and Spatial Modalities," psychologist Erik Erikson examined how patriarchal socialization results in a different way of creating of space for boys and girls. Erikison reported that girls create spaces that have lower walls and elaborate doorways (at the human scale), "which mimic the womb and are 'expressly peaceful'" while boys create huge vertical towers that resemble the penis, "in which 'there is…much play with the danger of collapse or downfall…ruins were exclusively boy's constructions'" (Weisman 28). This astonishing study demonstrates the level of dualistic associations embedded in the institution of architecture. Even young boys and girls are socialized to related to space in these dualistic ways, which subsequently results in different (though subconscious) approaches to design. Unfortunately Erikson failed to recognize the social ideology that attributed to these differences,

instead attributing it to biology, which was criticized by many who thought it was used to justify sexism, racism, and classism. A more logical explanation is that girls and boys are socialized to behave this way-girls to relate to personal body space, interiors, domestic and boys to associate with public, outdoor space (Weisman 28). Boys are encouraged to be adventurous with their surroundings, be vocal, and claim space with their body positions by spreading out, while girls need to sit ladylike and are restricted to playing in their home environment and neighborhood (Weisman 24).

Removed from the dominant paradigm of architecture, which champions civilization over nature, women have the potential to think about dualistic constructs differently based on their shared oppression with nature. Is it possible that due to their social experience, women think outside the male dominated paradigm of architecture?

5.2 Women in Architecture

The overwhelming male presence in the architectural profession has caused women to be identified as a separate group when receiving recognition in recent years. When considering female architects, only one name comes to the public's mind: Zaha Hadid. Despite her star architect status, and her 2004 Prizkter Prize, she is still recognized as a successful *woman*. The distinction of women as a special faction within a larger group isolates them. On her own label as a female architect, Chloethiel Woodard Smith said, "I am called a "woman architect" and I have disliked that title—I have resented it—for its implication that women have some physical or mental impediment that they have remarkably overcome in managing to practice architecture" (Woodard Smith 222). When considered in context of gendered themes in architecture discourse, this fragmentation contributes to the belief that a female subgroup may create differing architectural products or possess different abilities from the dominant male paradigm. Similar to

the application of gender-dualistic thinking in architectural forms and spaces, acknowledgement of a female group of architects as a separate entity also perpetuates dualisms evident in design approaches and philosophies of today's practicing male and female architects.

Some women have claimed a (difference) 'feminist' approach to design as an alternate story to the historical male paradigm due to their experience of oppression. This causes them to value design strategies currently ignored, and re-identify with the hierarchically lower-ranking side of existing dualisms, such as 'body', 'nature', etc. By adopting a historical position, it is possible to analyze the construction of the feminine perspective based on their experience. Architectural theorist, Deborah Fausch, argues against essentialism, claiming not that "the feminine is bodily, but that the bodily is feminist—not that a concern with the body is a guarantee of non-oppressive attitudes, but that a nonoppressive attitude would include a regard for the bodily. It is to claim that women can have a body without *being* the body" (Fausch, 1996 39). Thus, women's attention to the body in design should not relegate her as essentially more connected to the body then men, but that her experience has caused recognition of the body as something to be fought for:

> Living on the periphery of power, marginalized by male-dominated institutions, women have learned to see the world from the outside looking in. The experience of marginality has developed in women the ability to empathize with others, especially the powerless in society. This ability is crucial to the creation of new space that fosters human equality (Weisman 171).

In the 1970's women design firms began to receive recognition due to the literary feminist movement. Unfortunately these firms such as London's Matrix, formerly the Feminist Design Collective, boasted non-hierarchical organization that was thought to be too radical to contribute to the liberation of women (Rendell 228). These organizations strayed from the 'star architecture' system, through maintaining a group identity, hosting shared responsibility, and

rewarding equal pay across all firm employees. Their design approach was more collaborative between users and architect and focused on communication rather than 'image' (Rendell 230). This model aimed to disable the master-author myth, and reveal the falsity of universal truth embedded in the dominant paradigm.

Apart from firm structure and organization, women architects have also held different goals for their work. In 1941, Henry Atherton Frost, founder and administrator of the first professional architecture school for women in America, wrote: "'The woman architect is interested in housing rather than houses, in community centers for the masses rather than in neighborhood clubs for the elite, in regional planning more than in estate planning, in social aspects of the profession more than private commissions…Her interest in her profession embraces its social and human implications'" (Weisman 29). Self identified, 'feminist architects' such as Margrit Kennedy have also characterized women as having a more socially aware design consciousness. Her 1981 article in *Heresies*, "Seven Hypotheses on Female and Male Principles in Architecture," she claimed women architects to be "more user-oriented then designer-oriented, more flexible than fixed, more organically ordered than abstractly systematized, more holistic than specialized, [and] more complex than one-dimensional" (Weisman 29). Both of these descriptions of a female design approach differ greatly from the discussed masculinist rationality that sought to impose the design of an individual will as universal truth. Women's identification with real world ('body') issues causes us to revisit the problem of the mind/body dualism evident in architectural practice's dominant male paradigm, which fuels the championing of civilization over nature. As philosophers have used vision as a metaphor for thought and light as a metaphor for reason, sight has been juxtaposed with the rest of bodily senses as the sole determinate of architectural value in the rationalist male paradigm (Fausch, 1996 40). Abstract concepts used to

generate obscure attention grabbing forms often overlook the social, functional, and economic implications of that form. The separation of sight from other senses establishes the isolated relationship between subject and object, which positions architecture as symbol rather than a setting for human life. The dominant architectural paradigm that continues to value mind over body, which is associated with nature and women, thus, devalues real-world human experience, an issue many women architects try to reclaim. Karen Frank seeks to reposition the body "as subject, not only as object" (Frank, 2007 31). She writes:

> It is recognized as the necessary and animate *condition* for human life, as giving us access to the world. Through the body we are. We come to this earth with a body that we leave to the earth when we depart. Our souls wear bodies; they can not make themselves manifest without them…As subjects, our bodies are permeable, fluid, and open to objects, people, surroundings; without them our bodies are incomplete…As subjects, we sense the world in all its richness: we touch, smell, hear, and taste it…Conceiving of the body as subject helps us realize that we build for bodies. A church, a prison, a cup, even a straight boundary wall are all built for bodies (and by bodies) Matter has to be used to supplement, to support, and to protect their matter (Frank, 2007 31).

Thus, feminist architecture seeks to create a total experience through the engagement of all the user's senses. The involvement of the body in architecture allows each individual to construct her own story of the space based on her experience rather than be imposed with a hegemonic narrative defined by the autonomous architect (Fausch, 1996 53). Maya Lin's Vietnamese Veterans Memorial in Washington D.C symbolically represents the loss of soldiers through its gashed shape in the grass which ruptures the ground plane. As visitors move along and feel the reflective black wall of engraved veteran names, they intimately see and feel themselves as emotionally connected to the experience. Le Corbusier's chapel at La Tourette, a dark, high, oblong shape, causes the user to absorb the experience through the reverberation of sound and movement of the body more than through sight. Mary Miss's *Veiled Landscape* structure is a series of articulated screens of wood and metal that marks a trail that descends into

a New England forest. It frames views with wooden platforms and screens, creating scenes along the path, which causes the user to experience the design through the position of his or her body (Fausch, 1996 44-5).

As feminists call for a greater degree of synthesis between these categories of mind and body they also desire a greater overlap of spatial domains, such as public and private space. They strive towards a sense of community and a revaluation of everyday activities that have been historically associated with the female gender. Marge Piercy's utopian novel, *Woman on the Edge of Time* fantasizes a place where work takes place within walking distance of people's cottages and other centers of activity (Frank, 1989 205). Dolores Hayden's proposal for reorganization (re-zoning, re-building, re-landscaping) of a typical suburban block includes individual houses, with a village green play area, and new zone for childcare, elderly care, laundry and food service. It has sidewalks ringing the entire green with new street trees and vegetable gardens, outdoor seating and collective entrances to the green (Frank, 1898 205). This utopia exemplifies the characteristics described by Kennedy and Frank as a center for socially connecting residents, providing flexibility and overlap of the every day activities of wage work and home life, and offering an 'ethic of care'. It also provides space for alternatives modes of living to the nuclear family, which was enforced by masculinist rationality in architecture.

On a smaller scale, community is encouraged in feminist design through the integration of visual connection between spaces, activities, and people using an individual building. This aims to break the dualisms between inside/ outside, individual/shared, and again, public/ private. Frank offers two examples: one of a waiting room in a community health center that also serves as a café to foster conversation and one of a community center with large windows in interior halls to view activities inside a workshop (Frank, 1989 206). Architect Lilly Reich's open plan

apartment divided the apartment across the narrow dimension to provide areas of rest, study, or dining in which the furniture could be rearranged to change the division and transform the entire room. Her design improved upon Mies Van der Rohe's conceptual, but not functional (thus, still oppressive) traditional open plan, which generated hierarchical sets of spaces (main and subsidiary) for fixed functions. In Mies' design, the living space couldn't be a minor space because of its central placement and formal composition (Frank,1898 211). Transformation and flexibility of space encourages a more holistic, less competitive environment that exemplifies non-oppressive societal attitudes toward other humans and the environment that feminists aim to realize.

These examples of feminist design solutions reflect values and characteristics of the female ecofeminist paradigm introduced in chapter 4. They provide insight into the translation of gender dualisms to the architectural profession as a 'field' that also constitutes the subconscious 'habitus' of male and female architects who perpetuate these paradigms. Sustainable design also holds many of the same non-hierarchical, holistic goals as feminist design, which provides a foundation to investigate the relationship between non-human nature, women, and architecture. Unfortunately, because gender dualisms are so embedded into western institutions, the disassociation of women from the natural realm will not occur until the primary dualism between civilization and nature no longer exists. This creates a predicament, in that while sustainable design gains popularity working to build a new paradigm, remaining forces of counterproductive dualistic thinking will create resistance. Unconscious association of women with nature may or may not have already embedded dualistic thinking into the institution of sustainable design. But, before an alternate paradigm can be proposed, the current situation must be assessed. As the dominant paradigm of architecture favors both human civilization and male preference, this

study seeks to uncover if female architect's experience has caused them to identify with nature and thus, have a unique perspective towards sustainable design.

CHAPTER SIX

Methodology

6.1 Related Studies

The previous chapters outlining the primary dualism, its presence in the architectural profession, the associated secondary gender dualisms, and women's position in architecture frame the problem that this study attempts to address. Although these themes have been theoretically investigated individually, they have rarely been directly addressed in context of one another, demonstrating the relevance of this study, which seeks to understand the relationship between the civilization: male/ nature: female dualism and sustainable architecture. No scholarly studies have been conducted that directly address this relationship. Thus, the concept of interest is "immature" due to a conspicuous lack of theory and previous research, and the phenomena must be explored to develop a proper theory (Creswell 98).

A 1997 student essay by John Murray published in Architectural Theory Review titled "Can Women's Ways of Knowing Lead Us to More Ecologically Responsible Design?"

discusses the relationship between ‘women’s ways of knowing’ and humane and ecologically responsible architecture. He writes from a male perspective with interest in designing in a historically categorized female way. The essay discusses notions of masculinity and femininity as social constructs and he asserts that neither paradigm of design is exclusive to the associated gender. He writes:

> Females have been known to design high rise, so called 'phallocentric', towers, and men to design user-centred, organic, socially equitable buildings. The point is not about a strict women and men divide but rather about dominant and oppressed ways of thought and action, a problem of power. The question is whether redressing this imbalance will benefit our approach to design, science, technology and ecology. Clearly, in my view, it will (Murray 128).

He suggests that general awareness of these dualistic ways of knowing must be increased, which will lead to a recognition of the dominant male paradigm, and the need to value ‘women’s ways of knowing’ as well. He categorizes female architect’s designs as more comfortable, attentive, tender, client-centered, and socially responsible (Murray 129). He also suggests resistance to these modes of designing originate in architectural education, women’s minority position within the industry, and dominant architectural discourse. Murray (132) concludes by claiming ‘women’s ways of knowing’ can be shared by both women and men through working collaboratively and prioritizing client comfort, physical and social context, and using technology for social and environmental benefits rather then purely for profit. Though this essay discusses the intersection of design and ecofeminism, it provides no qualitative or quantitative data to support the argument, and is thus, only suggestive of the conclusions it hypothesizes. While Murray seems to reject essentialist categorizations of male and female ‘ways of knowing,’ his call for both genders to recognize value in ‘women’s ways of knowing’ counterproductively maintains the dualism he aims to eliminate.

As stated in her paper, “Disintegrated Houses: Exploring Ecofeminist Housing and Urban

Design Options," Louise Crabtree (713) believes that problems of ecocity and ecofeminism can be addressed through the integration of Chantal Mouffe's decentralized and integrative structures and processes, removing the essentialist 'ethic of care' of ecofeminst visions. Her paper proposes traits of Mouffe's citizenship—embeddedness, flexibility, and diversity—as solutions to rethink houses and economies and frame a responsibility for sustainability from a broad social, economic, and ecological perspective (Crabtree 713). According to Mouffe, individuality is constructed by a collection of subject relations constantly in flux, and thus, is socially embedded and flexible. In her perspective, gender categorizations are not fixed and can be shifted through this re-conceptualization of an alternate paradigm (Crabtree 713). In Ecocity, embeddedness refers to taking responsibility for its physical requirements, such as onsite energy generation, water sourcing, water treatment, solid waste treatment and energy efficiency, while in feminist design it refers to social/economic embeddedness. In Both ecocity and feminist design, flexibility is the ability to accommodate changes over time, and diversity is multipurpose design that can serve multiple activities and lifestyles. She believes that this rethought framework can offer avenues for avoiding the failure of urban ecofeminist economic manifestos (Crabtree 711).

Crabtree (719) then outlines ecocity and feminist design principles highlighting specific design features that characterize non-essentialist environmental and social responsibility, offering examples of specific projects. Design strategies discussed consisted of onsite energy generation, food production, and rainwater water collection, reuse (Crabtree 720). She writes: "design features focus on higher densities, mixed use, greater public transport and walkability, and the incorporation of many currently marginalized or externalized functions into the urban fabric" (Crabtree 718). They focus on "safety, equity of access and provision of care within the urban form" (Crabtree 719). Thus, cohousing is the most prominent strategy for a new vision of

housing that focuses on building community though shared cooking/dining, work, play, laundry, bathrooms, meeting, and guest facilities (Crabtree 719).

While Crabtree's paper investigates similarities between sustainable design and feminist design, valuing a non-essentialist approach, she also does not conduct a research study to investigate the relationship in professional practice. Though her paper addresses themes of feminist design theory, she does not inquire about individual beliefs in the architectural population, instead she uses popular case studies as points of discussion.

The *Women in Green*, by Kira Gould and Lance Hosey directly addresses the relationship between women and sustainable design. It claims women have more environmentally responsible philosophies, are more connected to nature and thus, are the future leaders of the sustainable design movement (Gould and Hosey vii). The book is an unstructured analysis of qualitative interviews from a non-purposive sample and fails to provide sufficient reasons for male and female differences in design processes or outcome. Gould and Hosey build a case rather then investigate a phenomenon, approaching the participants with the clearly biased agenda to prove women are more sustainable then men. The available theory is inaccurate and perpetuates dualistic thinking (Creswell 99). Lacking true evidence, the analysis highlights women who have been involved with sustainable design and environmental initiatives without providing a fair comparison from the male's perspective. As the only other book or study written about women and sustainable design, *Women in Green* acts as this studies' primary source for comparison. Though it also seeks to investigate the relationship between gender and sustainable design, its informal, inaccurate nature cannot conclude anything suggestive of the truth, other then reflect the author's biased agenda.

Thus, previous research indicates a relationship between women and sustainable design does exist, but it must be tested more methodically to generate a hypothesis. Additionally, male and female beliefs about specific strategies and themes related to sustainable design have not been investigated, as *Women and Green*'s analysis presents participant's general philosophies and opinions about women and sustainability. In response to the discussed papers' oversights, this study aimed to use a purposive sample of male and female architects as well as provide a coded qualitative analysis that considers frequency of beliefs to examine the phenomenon.

6.2 Research Methods

Because this phenomenon has been examined very little in previous studies, an exploratory strategy, which consists of a primary qualitative phase (in-depth interviews), was used. This method was chosen because existing quantitative instruments are inadequate, not providing appropriate categories to reflect the broad beliefs of the respondents (Creswell 212). Additionally, because of the theoretical orientation seeking to explore the problem of dualistic associations of gender with beliefs, this research design according to John W. Creswell (212), could also be defined as a Sequential Transformative Strategy, which uses a theoretical perspective as the most important element to guide the study. Qualitative interview procedures were selected to question attitudes and values, which are difficult to understand via quantitative methods. Ann Chih Lin (5) describes this as an interpretivist approach, which aims to not only find the presence or absence of a relationship between variables, but to understand the causal

mechanisms, or the "specific ways in which it is manifested and the context in which it occurs" through thick description and personal accounts. To understand emerging theory, a grounded theory approach, described by Barney Glasser and Anselm Strauss (45), was used, which consists of dually collecting data, coding interviews, analyzing data, and using emerging themes to determine how to collect appropriate subsequent data (theoretical sampling). Michael Quinn Patton calls this emergent design, which allows the researcher to be open to adapting inquiry as her understanding of the phenomenon deepens, or situations change. A flexible qualitative procedure was particularly important because it prevented the researcher from becoming locked into "rigid designs that eliminate responsiveness" and allowed her to pursue "new paths of discovery as they emerge[d]" (Patton 1). These emergent results, which uncover major themes, could be used for future quantitative (survey) exploration of found phenomenon.

The qualitative data collection procedure consisted of one time semi-structured, in-depth, in-person interviews with 48 male and female design employees at a total sample of 11 architecture firms. The qualitative sampling strategy was to sample for range by identifying sub-categories of the group under study and to plan to interview a given number of people who were designers in the architectural profession (owners, principles, partners, senior associates, project architects, senior designers, junior designers, and draftspersons) (Small 13). Also called purposeful sampling by Patton (40), specific cases for my study were sampled due to their promise of offering rich, detailed accounts about the phenomenon of interest as opposed to "empirical generalizations from a sample to a population," which are more often results of quantitative research.

The selected firms are located in Philadelphia, PA and New York City, NY and were chosen based on available time and convenience, due to a high concentration of firms that fit

within the sample criteria in each of these locations. Each interview was audio-recorded, lasted for 30-60 minutes, and inquired about personal perceptions of connection with nature, individual sustainable design philosophies and how they were acquired and/or change, and feelings about dualistic associations of women with nature and men with culture.

Firms were selected to allow analysis of participant's responses, not only by gender, but by association with a level of commitment to sustainability (determined qualitatively by the firm's project list and publicized philosophy regarding sustainability). Firms that placed less emphasis on sustainability were called 'conventional' architecture firms, while those that placed more emphasis on sustainability were called 'sustainable' architecture firms. Additionally, the sample was selected to provide an even distribution of male and female-led firms in efforts to determine the correlation between individual employee's beliefs and the beliefs of a mentor figure. It was initially important to investigate if the gender of the mentor had an influence on the employee's beliefs.

Thus, a sample goal of 2 female-led sustainable architecture firms, 2 male-led sustainable architecture firms, 2 female-led conventional architecture firms, and 2 male-led conventional architecture firms was sought after. This sample was met with a true sample of 3 female-led sustainable architecture firms, 3 male-led sustainable architecture firms, 1 female-led conventional architecture firm, 2 male-led conventional architecture firms, and 2 male/female-led conventional architecture firms. This amounts to 11 firms total: 6 sustainable and 5 conventional architecture firms. It is important to note that varying numbers of employees within each firm were interviewed and any individual beliefs distilled from analysis according to firm must be taken as a ratio of participants within that firm.

Table 6.1 Participating Firms Profile

Firm Code	Level Sustainability	Gender Leadership	# Participants
1	Sustainable	Female	8
2	Sustainable	Female	2
3	Sustainable	Female	5
4	Sustainable	Male	3
5	Sustainable	Male	3
6	Sustainable	Male	7
7	Conventional	Female	5
8	Conventional	Male	2
9	Conventional	Male	1
10	Conventional	Male/Female	5
11	Conventional	Male/Female	7

Table 6.2 Number of Participants within of Various Firm Profiles

Total # Participants from a Female-led Sustainable Firm	15
Total # Participants from a Male-led Sustainable	13
Total # Participants from a Female-led Conventional	5
Total # Participants from a Male-led Conventional	3
Total # Participants from a Male/Female-led Conventional	12
Total # Participants from a Sustainable Firm	28
Total # Participants from a Conventional Firm	20
Total # Participants from a Female-led Firm (include. Male/female)	32
Total # Participants from a Male-led Firm (include. Male/female)	28

6.3 Potential Ethical Issues and Role of Researcher

To create an honest narrative and ensure the readers they are not being misled or deceived, I would hereby like to clarify my personal bias as a researcher as one invested in holistic sustainable design and reduced oppression through the architectural system. Nevertheless, I do present negative and discrepant information that runs counter to my findings, to ensure realism and truth in the presentation of my results (Creswell 192).

Any potential ethical issues that were encountered were related to the stated purpose and questions given to the participants. The participants were informed of the project's purpose and that they should fully understand it before partaking in the study (Creswell 89). They were given an informed consent form to sign before they engaged in any research activity, that indicated myself as the researcher, the sponsoring institution, how participants were selected, purpose of the research, benefits and risks for participating, the level of involvement of participants, a

guarantee of confidentiality, a clause stating the participant can withdraw at any time, and contact information (Creswell 89). Permission of authorities was gained at each research site and pseudonyms were used during the coding and analysis process in efforts to protect the anonymity of participants. The analyzed data will be kept for 5-10 years (Creswell 91). As the researcher, I have been honest with the presentation of my results and have avoided allowing individual bias to skew any findings to the best of my abilities (Creswell 92).

6.4 Preliminary Pilot Study

A qualitative pilot interview was conducted with a male who works at a mid-sized architecture firm (largely focused on sustainable design) located in Ithaca, NY. The interview guide followed the tree-and-branch model proposed by H.J. Rubin and I.S. Rubin, which equally explores several main questions within a core topic. The initial interview guide was divided into four broad categories as the main headings (with corresponding questions as subheadings): personal perception of human connection with nature and acquisition of these beliefs, personal beliefs about sustainable design and acquisition of these beliefs, firm's sustainable design philosophy, process, and office culture, and women and men in sustainable design. The tree-and-branch model was followed because certain questions needed to be asked to cover the entire subject of interest in depth and detail. These main categories and corresponding questions established a natural flow of what was to be asked (Rubin and Rubin 159).

Through conducting the pilot interview, it was discovered that the initial interview guide, structured to follow a tree-and-branch model, allowed for more freedom in follow-up questions than was expected. It yielded results similar to that of a river-and-channel model, which prioritizes the investigation of one theme (river) that can lead to the discovery of related issues (channel). The majority of time was spent focused on two similar themes (personal perception of human connection with nature and personal beliefs about sustainable design), allowing room to ask in-depth follow up questions about emerging themes (Rubin and Rubin 161). In retrospect, the interview guide could be categorized as a fusion between the two methods, in that it only has a few main questions to be covered (overarching framework of tree-and-branch model), but leaves room for the participant to provide exploratory responses (embedded river-and-channel model).

Results of the pilot interview showed that the participant had a strong connection with the natural environment and a holistic approach to sustainable design, primarily acquired through self-interest and self-education. The participant believed sustainable design not to be about a specific set rules, such as those of the LEED rating system. However, he believed LEED to be useful in raising awareness about sustainable practices. He mentioned his commitment to designing for people, creating experience and community (designing, not just building)—while this seemed inspired, it still comes from an anthropocentric point of view, in which the ultimate goal is to keep human race going and hope the evolution of people is sustainable. Related to gender, he believed women have the ability to sense people better than men because they are more emotional, allowing them to understand what the user needs better than a man is able to. Although he claimed women and men to be completely equal in the design profession, this distinction (emotional differences) indicates his views are somewhat conflicted.

The preliminary pilot study informed the restructuring and modification of the interview guide to avoid leading questions and have clearly defined categories that relate well enough to one another that conversation could flow easily between them. Findings from the pilot study reinforced that idea that it is beneficial to ask about perceived gender differences as well as more objective individual beliefs about sustainable design that would later be analyzed by gender. This sets up a comparative analysis that highlights discrepancies between participant's conscious and subconscious.

6.5 Qualitative Interview and Analysis

To obtain insight into architect's beliefs regarding sustainable design, a qualitative interview guide was crafted and followed, which highlighted primary themes of interest to facilitate a natural flow of conversation with participants. The guide consisted of five broad sections: personal perception of human connection with nature, acquisition of individual beliefs about human connection with nature, personal beliefs about sustainable design, acquisition of individual beliefs about sustainable design, and beliefs regarding women and men in sustainable design. The first section aimed to capture the participant's beliefs about how they position themselves, and more generally, human society, in context of non-human nature. In the second section, inquiry into how participants formulated their individual position to non-human nature is meant to expose institutions that hold the power to shape ideas and act as mechanisms for change, weather it be childhood experiences, school, or peers. To investigate if and how men and

women relate to sustainability differently, conceptions of and approaches to sustainable architecture were inquired about. Questions probing definitions of sustainable design, sustainable design strategies, the use of technology in sustainable design, the Leadership in Energy and Environmental Design (LEED) Green Building Rating System, perceived constraints of sustainable design, and areas of growth in sustainable design helped to formulate a saturated understanding of each participant's philosophy. Additionally aiming to understand how these beliefs about sustainable design were acquired provided further understanding of mechanisms for change that have the ability to encourage an alternative non-dualistic paradigm. Lastly, to compare participant's reported beliefs about gender differences in environmental philosophy and sustainable design to actual differences seen in responses to the aforementioned sections, a quote from Kira Gould and Lance Hosey's book, *Women in Green*, was used to introduce the concept of sex-based differences in design and obtain participant's responses/ reactions. The selected quote spoken by Interface chairman Ray Anderson, reads, "A new day dawning will build on the ascendancy of women in business, the professions, government, and education. This is one of the most encouraging of all trends, as women bring their right-brained, nurturing nature to bear on the seemingly intractable challenges created by left-brained men and their pre-occupation with bottom lines and other "practical" considerations. After all, it's the practical and pragmatic that got us into this mess. Surely, a different kind of thinking is needed to get us out" (Gould and Hosey 1). Though the biased nature of this statement could arguably lead to measurement error in the participant's response, its passionate language was intended to excite a strong response (either assent or dissent), which would indicate popular beliefs regarding the relationship between gender and sustainable design.

Qualitative data analysis followed the grounded theory approach, which involved first conducting open coding by generating categories of information through a line-by-line coding technique that allowed each idea to earn its way into the analysis, preventing researcher bias (Charmaz 35). The open coding then informed axial coding, which consisted of positioning a category within a theoretical model. Finally, selective coding, which creates a larger story from the interconnection of the created categories was performed (Creswell 184). Analysis paid attention to "multiple layers of meanings" from collected interviews, additionally noting unstated assumptions about participant's attitudes and beliefs (Charmaz 32). To achieve qualitative reliability qualitative analysis software ATLAS.ti was used to ensure the consistency in the definition of codes and transcripts were checked to ensure there were no mistakes made during transcription (Creswell 190). Qualitative validity was established through the use of rich, thick description to describe the results (Creswell 191).

Each participant's response was coded into categories that could be used to organize analysis by firm, position within firm, and most importantly, gender, though analysis was primarily derived according to the variable of gender. Derived from and fitting within the original five sections described, the primary codes of focus include Barriers to Sustainable Design (perceived limitations to the progress of sustainable design)**,** Critical of (participants expressing critique of an existing phenomenon), Environment as (participant's understanding of the term 'environment'), Formation of Conception of Nature (influential factors that construct ideas about nature)**,** Formation of Sustainable Design Philosophy (influential factors that construct ideas about sustainable design)**,** Human/Nature Relationship (human's perceived position on their relationship with non-human nature)**,** LEED (ideas about the LEED rating system)**,** Nature as (participant's understanding of the term 'nature'), Solutions for Change

(visions for an alternative paradigm)**,** Sustainable Design Philosophy (broad conceptual positions regarding sustainable design), and Sustainable Design Strategy (specific sustainable design solutions). Each of these codes has sub-categories, which provide further detail as to the particular sentiment expressed within each broad code category. For example, the broad code category of 'Sustainable Design Strategy' encompasses both the codes, Sustainable Design Strategy-Community Involvement and Sustainable Design Strategy-Energy Usage. Though both of these codes are topics of sustainable design solutions, they indicate different interests of the participants who mentioned them.

These codes were then analyzed to uncover the Overall Perceived Gender Differences, Top 5 Average Code Occurrences by Gender, Top 5 Similarities in Average Code Occurrence by Gender, Top 5 Differences in Average Code Occurrence by Gender, Top 2 Overall Formation Variables of Conception of Nature, Top 4 Overall Formation Variables of Sustainable Design Philosophy, and Top 3 Solutions for Change reported by participants. Average code occurrence was calculated by dividing the number of times the code occurred overall by the number of participants included in the category of analysis (all or male/female). Findings are *indicative* of patterns in thinking, but are *not generalizable*, as the sample size is too small to be representative.

CHAPTER SEVEN

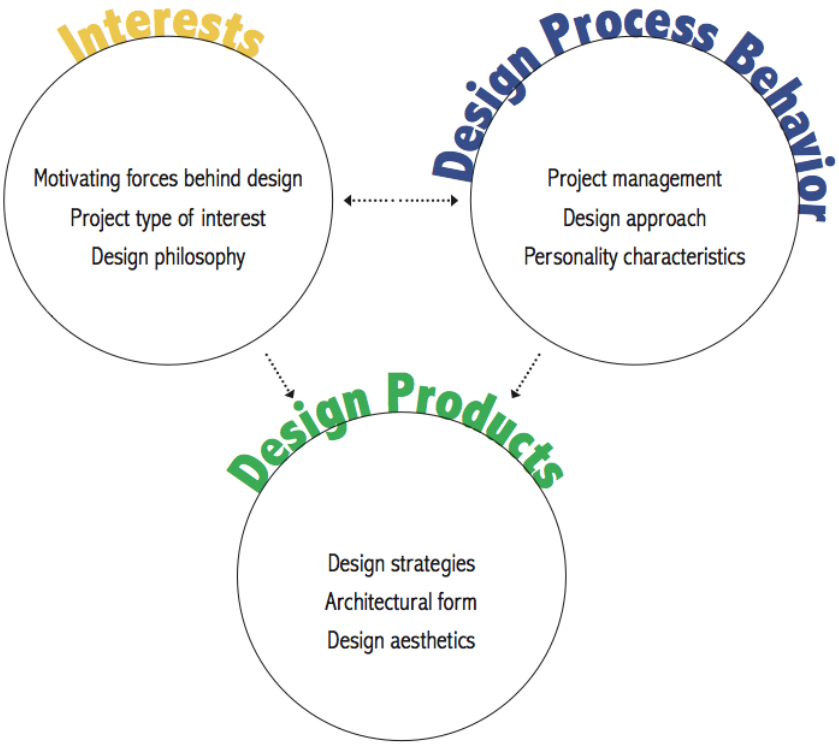
Results of Qualitative Study

7.1 Overview

This analysis will begin by discussing what participants reportedly believe about gender differences in sustainable design in effort to lay a comparative groundwork for the description of actual gender differences in reported beliefs about sustainable design. To do this, the **Architectural Identity Map (A.I.M.),** created by the researcher for this study, will visually represent three realms that constitute an architect's overall position within the context of the design profession: Interests, which include a designer's motivating forces, project types of interest, and design philosophies, Design Products, which include design strategies, form, and aesthetics, and Design Process Behavior, which includes project management and individual personality characteristics brought to the design process. This conceptual infrastructure will be referenced throughout the analysis to explain perceived and actual gender differences regarding sustainable design, examining in which of the three realms lay the greatest differences.

The next section of the discussion, section 7.2, will examine the top five code occurrences (most frequently mentioned codes) by both men and women architects in efforts to provide a broad understanding of the industry's current thoughts about sustainable design, including topics they most frequently think about, discuss, and encounter in practice. This will be followed by an analysis of, the top five similar codes in section 7.3, calculated from a list of statistically significant codes, greater then .05, that have the smallest average delta in code occurrences between men and women. This will shed light on sentiments shared by men and women. Conversely, in section 7.4, the top five differences in sentiments mentioned by men and women will be presented and discussed by conversely sorting statistically significant codes by the largest average delta in code occurrence. Using the **Architectural Identity Map**, it will be determined in which of the three realms the greatest differences and similarities occur. Counter examples to the hypothetical conclusions will be presented, as there exist outliers to the found conclusions. The results will aim to explain what additional variables (aside from gender) influenced these counter-example beliefs and will indicate areas where change can be instituted. Formative variables, alternate to gender, have the potential to play a large role in the elimination of gender patterns as they act as institutions embedded with mechanisms for change. Finally, the last section 7.5, will present the top five alternative variables of formation of conception of nature and sustainable design philosophy.

Figure 7.1 Architectural Identity Map



7.2 Overall Perceived Gender Differences

When read the quote from *Women in Green* and asked to comment about gender biases, most men and women reported gender does not distinguish approaches to sustainable design. The three sub-codes under the broad code category, "Gender Difference Codes," that held the most code occurrences for men were "Critical of Dualistic Mentality" (regarding gender dualisms), "Individual Difference Over Gender Difference" (belief that differences in design philosophy and approach are products of variables differing by individual's total background rather by gender alone), and "No Difference in Male and Female Designs" (design products from males and females have no visible difference). The top three most common sub-codes for women include "Critical of Dualistic Mentality", "Women in Architecture" (discussing the role and position of women in the architectural profession), and "Equally Sensitive Designs" (men and women both have the ability to design with sensitivities for context and non-human nature).

Women's fourth most frequent sub-code occurrence was Individual Difference Over Gender Difference.

The following tables present the overall perceived gender differences for men and women, Table 7.1 indicating men's reported beliefs, and Table 7.2 indicating women's. Both tables also reference the associated code occurrence for the opposite gender for each code mentioned as a point of comparison.

Table 7.1 Overall Perceived Gender Differences- Men

Code Name	Total Occurrences Average	Male Occurrences Average	Female Occurrences Average
Critical of Dualistic Mentality	0.63	**0.77**	0.50
Individual Difference Over Gender Difference	0.39	**0.36**	0.42
No Difference Male and Female Designs	0.22	**0.23**	0.21
Men More Practical	0.09	**0.18**	0.00
Sustainable Consultants Women	0.33	**0.14**	0.50

Table 7.2 Overall Perceived Gender Differences- Women

Code Name	Total Occurrences Average	Male Occurrences Average	Female Occurrences Average
Critical of Dualistic Mentality	0.63	0.77	**0.50**
Women in Architecture	0.33	0.14	**0.50**
Equally Sensitive Designs	0.30	0.09	**0.50**
Individual Difference Over Gender Difference	0.39	0.36	**0.42**
Women Listen Better	0.24	0.14	**0.33**

7.2.1 Dominant Opinions

The majority of men and women were consciously critical of a dualistic mentality that generalizes and relegates women and men to having different design processes or solutions. This belief could stem from the simple observation and experience of males and females in the design workplace, as one female participant working for a male and female co-principled architecture firm reported: "I don't know if I would segregate it so much, those types of thinking to each gender. I mean, I've seen the pragmatic in women and I've seen the opposite in men." In response to Ray Anderson's, categorization of men as pragmatic and women as nurturing in the highlighted quote from *Women in Green*, one female registered architect said, "I think there is a way to be both conscientious of that [nurturing] and pragmatic at the same time. Otherwise, how do you achieve that design in the first place? Do you know what I mean? I think it's a combination of both that, just saying that it's one side to the brain or one gender does it… is like too limiting in order for it to actually be 100%, even 50% correct." This participant rejects the respective positive and negative value attached to nurturance and pragmatism, claiming that both are necessary for successful sustainable design. She affirms her belief that one side of the brain or one gender alone cannot achieve a better sustainable design, but fails to dispel the association of women with nurturance, and men with pragmatism. Although she outwardly criticizes the dualistic division of sustainable design into positive (nurturance-based) values and negative (pragmatic) values, she does not clearly address the relationship of these classifications to gendered realms, demonstrating an underlying acceptance of Ray Anderson's gender assumption. Another young unregistered female designer, however, addressed the harmfulness of gender dualistic thinking head on: "It kind of splits women and men down by this like nurturing versus this like very strict, by-the-rule gender thing. I'm not sure I really wanna go that direction

because…I feel like as we move on to the future, we gotta stop separating the men and the women and how they [think, design, etc.]…I don't wanna have to go down the road…that women designers or women professionals are gonna like change the world." She is resistant to making gender categorizations that position women as the future of sustainable design, which would allow men to identify with and continue the existing harmful paradigm. Instead, she believes men and women should share the responsibility to be both nurturing and pragmatic, leveraging a holistic mentality to achieve sustainable design, collectively. Similarly, a male principle of a female founded architecture firm said, "I think these gender stereotypes are kind of not helpful…because they just sort of marginalize the participation that 50% of people could make towards these issues, right?…You have to define the roles that you're comfortable with, and I think that if we limit it, if we sort of say that, 'Alright, well, women have to do it this way. Men have to do it this way,' I think we end up with problems." Thus, overall, both women and men held the sentiment that overgeneralization of male and female roles is fundamentally incorrect and potentially dangerous to the progress of holistic sustainable design.

An alternative to belief in gender as indicative of approach to sustainability, is belief in the attribution of individual personality differences (formulated by various external variables) to the construction of one's levels of sustainability, seen in the second most occurring sub-code among men. A male principle of an all-male owned sustainable architecture firm agrees that a paradigm shift in thinking about sustainable design is necessary but rejects the dualistic association of gender with certain characteristics that harvest sustainable design. In response to the *Women in Green* quote, he said:

> I mean the essence of the quote I believe in very confidently. I think that there does need to be that kind of shift [less pragmatic, more nurturing]. I don't really like to narrow it down to specifically men or women. I think it's more, when you describe the traits that they're talking about, I think that that shift in traits is

> important. Like there are men that have those traits and there's women that don't. So, I think to narrow it down into men and women almost seems a little juvenile…I think the important thing is to talk about what we're saying, and if what we're saying is that there needs to be less pragmatic and practical and more sensitivity and holistic views, again, I totally agree with that.

Similarly, an unregistered male working for a female principled architecture firm with a focus on sustainability also claimed that gender does not dictate predisposition to sensitivities toward non-human nature: "I'm sure you can find plenty of women and men both, who don't think differently, and plenty who do. It's like comparing engineers to architects and designers. They are different types of people, have different interests or different skills. Maybe the idea is that we need to think differently and we need to find a group of people who think differently. I wouldn't argue that it's women, I would argue that it is people that are predisposed to think differently." According to a female participant, thinking differently depends on "how open-minded you are. And how flexible you are as a person. And willing you are to try." But in relation to this belief, what influences a group of people to think differently? As the fourth most occurring sub-code for women, females also believe that gender has little influence on the construction of individual sensitivities or position toward the natural environment. An unregistered female architect working for a female principled and founded architecture firm believes "everybody's interpretation of sustainability and their ideas about it all come from the environment you're placed in, the environment like you're brought up in or educated in. [she does not] necessarily think that gender has such a big thing to do with it." Both these male and female participants exemplify the prevailing belief that variables such as childhood experiences, education, and physical environment play a larger role in the constitution of an individual's environmental philosophy and approaches to sustainable design then gender. However, as discussed in chapter 4, gender is also a cultural construction, formulated by "the environment you're placed in, the

environment…you're brought up in or educated in." Thus, though participants do not consciously acknowledge the historically embedded character assumptions distinctively linked to the male and female genders as formative of sustainable design beliefs, it can be hypothesized that they play a large role.

When asked about physical design differences in products created by men and women, again, the overwhelming response (sub coded as 'No Difference Male and Female Designs') denied differences between the two genders. A female respondent, principle and founder of an architecture firm with little sensitivity to sustainability, stated, "I don't know if the end result is different. Like I don't know, I don't believe that, you know, you could look at this and look at this and say, 'This was designed by a man. This was designed by a woman.'" This idea supports the consistent belief among participants that gender dictates no visible differences in sustainable design processes or outcomes. Similarly, a registered male architect at a male and female principled firm reported, "Do I see a difference in how women and men design, no I don't. As far as how women and men act in the workplace, I'd say to some degree professionalism is professionalism, and someone who has those characteristics, whether male or female, are actually pretty much the same." In this participant's belief, males and females both have equal approaches to designing as well as professional etiquette.

Women also often reported men as being just as sensitive to issues regarding sustainability as women, reinforcing the belief among participants that gender does not correlate to particular characteristics, behaviors, or philosophies. When read the quote from *Women in Green* and asked about female sensitivities, a female participant supported the idea of men as sensitive: "I think that I can see where it is very much the opposite. My dad is the very sensitive one. My dad came from like a very small town, and I feel like he's 90% of the reason that I'm

sensitive to these issues." Another said, "I grew with a father who cared very much about nature and is probably the biggest reason I have the feelings I do. My father is a man and he very much values nature, and everything we've been talking about." Through personal examples, these two female respondents have witnessed counterexamples to the claims made by difference feminists and Gould and Hosey in *Women in Green.* In their case, dualistic gender assumptions did not apply to their fathers, who in turn through mentorship and life experiences taught their daughters to hold similar values. This evidence supports the possibility for individuals to be shaped by variables other then historical, culturally embedded gendered behavior, but does not provide evidence to oppose the notion that gender dualistic thinking still influences a broader majority of design professionals.

Lastly, when asked to comment on the quote about gender difference, women were very interested in discussing their own experiences as the minority gender within the architecture profession. One participant, principal of an architecture firm, expressed anger regarding the acknowledgement of women within architecture as a separate, marginal group. She explained, "there's a division in AIA for women in architecture or something. They did an exhibit at one time on women in architecture. But it wasn't like critiqued, edited. It was like, just because you're a women, you could exhibit work...And I just thought it was awful...It was a terrible show...There was no standard...There was no critical value at all." The lack of criticality of women architect's work in this case, demonstrated the lack of respect or prestige given to women compared to men in the architectural profession. Women are still treated unequally and categorized as belonging to a sub-group within the profession, which perpetuates gender dualisms. Additionally, another well established female principle of her own architecture firm reported feeling discriminated against in the workplace due to her gender: "I see the difference of

people approaching us. I mean, as soon as we walk in a construction site, if there is a question, the contractor will immediately go to the male architect, even if it's somebody that we have just hired that day and I brought along with me to show him what we're doing." This experience indicates the modern prevalence of gender discrimination in the architectural profession and the continued existence of embedded gender assumptions, despite shifting practices. Another female participant said:

> I as a woman feel an enormous amount of pressure in our society in a man driven world, which I believe it still is. And I'm not sure that, I'm able as a woman to foster all of the things that I feel about how things should happen. It's interesting because we live in a much different world than when there was rampant discrimination against women, and I'm at a place where I'm working directly out in the field with contractors who are 99% of the time men. I have experienced times when I thought I was discriminated against but I never really thought that I could blow that whistle. I could never walk up to a contractor and say I feel your disrespecting me because I'm a woman even know that's what I felt like.

Thus, despite assumptions of the modern workplace's gender equality, women still recognize differences between their experience and that of a man in the same position. Additionally, women also addressed the predicament of needing to choose between success in the highly time-intensive field of architecture and family, a choice that society does not often require men make. A female principle of an architecture firm explained, "I think that until we can acknowledge that people have multiple aspects of their lives, that the real kind of people, particularly women, shouldn't have to choose…Men have never had to choose between will they have families or will they have amazing careers...So women shouldn't have to choose either. Part of that's governmental, part of that's what we can do in our individual workplaces to make life possible." Her sentiments express the continued existence of cultural norms formulated by experience of the historical nuclear family, which relegated women to the realm of the domestic and men to that of the public. These women's level of awareness of their gender-based experiences in the

architecture profession indicates the reality of and prevalence of a continued dualistic paradigm that lingers from old behaviors and expectations.

7.2.2 Perceived Gender Categorizations

Though the top occurring codes about gender differences for both men and women emphasized a general belief that there exists little difference between men and women's design approach or products, some participants did mention dualistic characterizations of gender regarding the architectural workplace and approaches to design. These instances are important to note because although they do not reflect conscious popular belief, they are consistent with dualistic associations between women and nature and men and culture as described in previous chapters about ecofeminism and difference feminism. As seen in Figure 7.2, the Architectural Identity Map displaying participant reports of perceived gender differences, most perceived differences occurred in the design process behavior circle. This indicates participants believed the greatest differences between male and female architects occurred in the way they managed projects, approached design challenges, and in their innate personality characteristics in context of the workplace. However, these differences are not specific to sustainable design, as they represent attributes that could be applied to any work situation. In the following section, these results will be presented by first discussing participant's perceived beliefs about women in the architectural profession, followed by their perceived beliefs about men. Each circle within Figure 7.2 depicts horizontal and vertical axes that denote male and female's opinions about each gender group when read X axis first, Y axis second. The upper left quadrant indicates men's views of men, the upper right quadrant indicates women's views of men, the lower left quadrant indicates men's view of women, and the lower right quadrant indicates women's view of women.

Figure 7.2 Architectural Identity Map Perceived Gender Categorizations

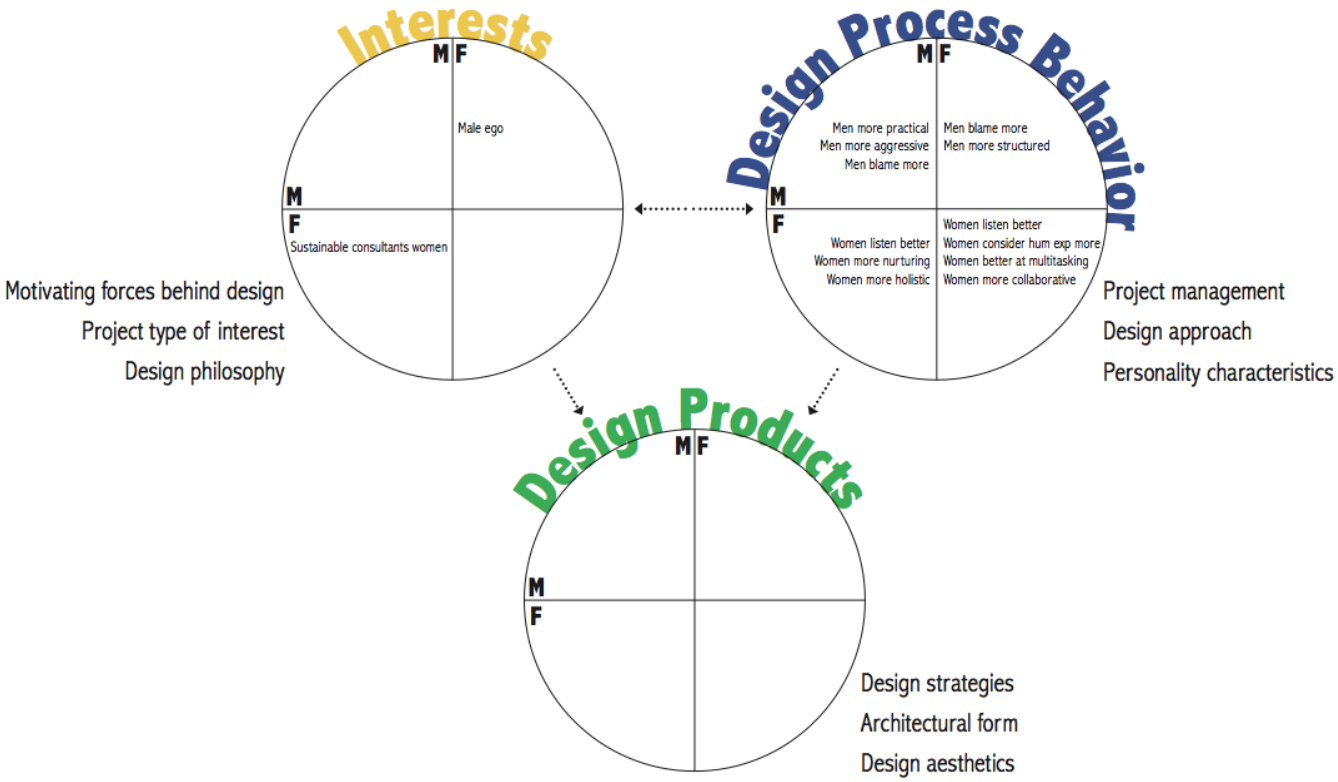


Table 7.3 Perceived Gender Differences- Women's Views of Women

Code Name	Total Occurrences Average	Male Occurrences Average	Female Occurrences Average	Gender Delta Average	% Gender Delta Average
Women in Architecture Profession	0.33	0.14	**0.50**	0.36	**111.52**
Women Listen Better	0.24	0.14	**0.33**	0.20	**82.37**
Women Consider Human Experience More When Designing	0.17	0.00	**0.33**	0.33	**191.67**
Women Better at Multitasking	0.15	0.05	**0.25**	0.20	**134.42**
Women More Collaborative	0.15	0.05	**0.25**	0.20	**134.42**

When read the quote from *Women in Green*, women who did mentioned distinctions between women and men, such as this registered female architect, most emphatically believed that "**women do listen more** carefully and are more accommodating designers." Another female architect, principal in a multidisciplinary firm with an emphasis on sustainability, believes **women are "a little more amenable to collaboration, cooperation**…listening and coming up with solutions everybody could live with." Similarly, women also believe that **women consider the human experience more when they design**, a logical extension of designers who are better listeners and can consider the user's needs more. A recent female graduate of architecture school working as an architectural intern stated, "I think definitely women tend to think of the details a lot more and, like, actually think how would this feel, how would the person like to be here…Even in my education, there have been more women actually that when they talk about a project they're designing, they talk about it from a much more sensitive or not necessarily personal, but they talk about it from the point of view of the person being there." Translated into design approach, these qualities imply empathy for the user's needs and a better understanding of the user experience of the proposed space. A female registered architect hypothesizes that the attention of women to practical issues of user needs stems from culturally dualistic gender roles that restricted women and men to a limited number of ways of expression:

> To me I would think women would bring a more functional practical interpretation to things because traditionally we've always been in the built environment we've been in the house, where things have to have a place of function or purpose to use…I guess think about if you are using the place that you were designing sometimes you get lost in the detailing or the larger picture and you don't think about is it going to get use the way you see it? Is it practical is it functional? I've seen a lot of firms that design big beautiful atrium spaces that are open to many floors and then I see in Architectural Record when they interview people that use the spaces and they don't like them. They're noisy, there's no privacy, they're not spaces for people to go and sit and talk without interrupting people that want a nice quiet place to study and be, and you hear the traffic of people coming and going.

Designing with disregard for how the space will be used once inhabited, exemplifies actions of previously discussed architects driven by their ego and a desire for autonomy. Some women believe as a group within architecture, they stray from this expression of autonomy in exchange for a more heightened connection and awareness to the user. In reference to design process, women also believe that they are **better at multi-tasking** due to historically embedded gender roles. One participant, principal and founder of her own architecture firm, reported:

> When it comes to design, I think we can do things in a different way. I think we tend to be better at multitasking things, I find, and taking into consideration a lot of other aspects of the world...Well, just because I think we do multitask, and I think we do think about a lot of different things when it comes to running a business in terms of people, you know, how they should be nurtured and how women react to stresses differently. I think women can take a lot more stresses. And also I think that we tend to think about, I think we tend to think more as a group than men do many times.

This example illustrates the translated effects of societal dualisms to the design world. Lastly, women reported themselves to be **more collaborative**, which relates to the idea of women as more connected and sympathetic to user's needs. Although one participant concludes that her statement is not all-inclusive, when discussing women in design she believes "there is that community feeling, there is that inclusiveness of get everybody's opinion. There's not that confrontation of I have to own this solely as my own, so you can collaborate a little bit more. I think women are more likely to do that then men."

Table 7.4 Perceived Gender Differences- Men's View of Women

Code Name	Total Occurrences Average	Male Occurrences Average	Female Occurrences Average	Gender Delta Average	% Gender Delta Average
Women in Architecture Profession	0.33	**0.14**	0.50	0.36	**111.52**
Women Listen Better	0.24	**0.14**	0.33	0.20	**82.37**
Women More Nurturing	0.11	**0.14**	0.08	-0.05	**48.79**
Sustainable Consultants as Women	0.07	**0.14**	0.00	-0.14	**209.09**
Women More Holistic	0.15	**0.09**	0.21	0.12	**77.16**

When expressing different categorizations of gendered behavior in context of design, men share many of the same beliefs about women as women do about themselves. For example, they also believe that **women listen better then men**, a quality which aids the designer's relationship with the client as well as ensures a more successful design outcome: "I think men…have a little more defensiveness about things or less of a willingness sometimes to step back and listen." This male participant, principal of a firm, does not explain reasons as to why he believes women listen more, but it indicates an embedded belief regarding the way women and men function in design. In addition to listening well, men perceive women to also translate their ability to multi-task (as women described themselves) into the **ability to envision multiple perspectives of a problem**: "I guess it's really the ability in some way…to be able to sort of step back and see things from many different perspectives. I think women bring that, or they'll bring different perspectives, which is incredibly valuable, I think. There's an ability to see or understand from different perspectives rather than maybe a single perspective." Women's ability to understand is consistent with the notion of women's enhanced collaborative skills, once again demonstrating empathy for their client. An unregistered male participant went so far as to outwardly express gender imbalanced interest in sustainable design due to women's innate characteristics, which predispose her as closer to nature: "There do tend to be more women, I would say, that kind of lead the charge, I guess, and that could very well boil down to the fact that women tend to be more nurturing."

It is important to remember these gendered beliefs represent minority participant responses. But when combined, women and men's gender bias assumptions about women's behavior in the architectural profession *are* consistent with difference feminist beliefs of women

as more connected, and social ecofeminist (*Women in Green*) positions of women as more holistic, nurturing, and thus, sustainable.

Table 7.5 Perceived Gender Differences- Women's Views of Men

Code Name	Total Occurrences Average	Male Occurrences Average	Female Occurrences Average	Gender Delta Average	% Gender Delta Average
Male Ego	0.09	0.00	**0.17**	0.17	**191.67**
Men Blame More	0.07	0.05	**0.08**	0.04	**58.08**
Men More Structured	0.04	0.00	**0.08**	0.08	**191.67**

When prompted to share opinions regarding gender issues related to sustainable design, both men and women tended to speak more frequently about women's differences. However a few key themes regarding men, consistent with a difference feminist perspective, did emerged. The most frequently occurring code about male gender differences mentioned by women was '**male ego'**. These women believe that men, more so then women, work from a desire to express individual autonomy, and thus, result in egotistical architecture (which has already been framed as antithetical to sustainable design). A registered female architect who currently works for a female founded firm said:

> In my experience, I've always worked in firms where it's been sort of male-dominated, all the partners were men, the principles were men, the more high-ranking people in the firm were always men. And I did always feel that there was just a different attitude toward design, like they…[were] more egotistical in some ways and trying to put [their] mark on something…just trying to make something look nice or make something be what [they] wants… just sort of working with materials…The first firm I worked I for, you can look at one of their buildings and you could tell exactly that that's one of their buildings because all their buildings look the same. [Laughs] It's just sort of like, 'Will this work here? So, it's gonna work here.' And they thought, 'Okay…'

Though this woman could have labeled her previous employer simply as a bad example of a firm with little regard for context, she attributed this behavior to the fact that the firm had a predominantly male presence, indicating her belief that the fundamental difference in the way the firm was run was the gender- paradigmatic assumptions it was principled upon. Another female participant, principle of her own firm agreed, but noted that women also have the ability to be driven by ego: "You see so many examples of male architects very, very ego-oriented, and usually women architects aren't. But then, to tell you, there are some really successful women architects, and they're very ego-oriented." She alludes to female architects that fill the role of starchitect within the dominant paradigm of dualistic thinking (separation from the world), but generally believes women are less egotistical in practice then men, also supporting difference feminist categorizations of gender. Additionally, women believed that instead of communicating with others, as they self reported, **men chose to blame** one another. A female principle of a firm that focuses on environmental concerns claimed:

> Women do work a little differently. They're much more about, 'Let's all sit down together and solve this problem together,' whereas I really felt with men, it was more about, 'Who's mistake is that?'…But I think that's the conception, [Laughs] that women can't go out on a construction site, and yet I find women are really good out in the construction site because they wanna solve the problem. They don't wanna find out who made a mistake and then blame somebody, [Laughs] you know, and sue them or whatever. It's really like, 'Let's see now. This is holding things up, let's figure it out.'

This could also be related to characteristics of the socialized 'male ego', which chooses blind autonomy over cooperation that is inherently counterproductive to sustainability. Lastly, women believed **men to follow a more rigid organizational structure** and business plan when designing. This could relate to difference feminist distinctions of men as more practical and goal oriented, compared to women who are thought to be more fluid and process oriented. A registered female architect working for a female founded and directed firm said:

> A lot of it is male dominated, definitely. So, I would say from the business side of things, it's definitely like we have these 10 kinds of [things] we need to get clear, like, 'Let's check each one off as soon as we can,' and if something comes up where this process is interrupted and there's a time delay, it becomes very much a problem. I find maybe [men] are more restricted to that timeline or process line whereas my experience here [in a female led firm] is like, we'll have an issue in the office, and then the way we talk to clear those issues, and if it takes us down a different path, then so be it.

This participant makes the assumption that the difference in design process behavior at her firm can be attributed to the paradigm of the leadership within the firm. In her opinion men place more value on scheduling and other practical details of the design process, while women chose to focus on more qualitative components. This observation is consistent with the gender dualistic thinking that perpetuates division between men and women in architectural practice.

Table 7.6 Perceived Gender Differences- Men's View of Men

Code Name	Total Occurrences Average	Male Occurrences Average	Female Occurrences Average	Gender Delta Average	% Gender Delta Average
Men More Practical	0.09	**0.18**	0.00	-0.18	**209.09**
Men More Aggressive	0.04	**0.09**	0.00	-0.09	**209.09**
Men Blame More	0.07	**0.05**	0.08	0.04	**58.08**

Similar to women's view of men as more structured, when reporting gender differences about men, **male participants most frequently claimed their gender to be more practical when designing.** In response to the *Women in Green* quote, which describes men as more pragmatic, a male participant reported, "I think that's very true. I would agree with that. I think men in the profession generally do tend to be more pragmatic, and I think I fall into that category at times, too, in kind of the search for efficiency." In another male participant's perception, the

belief of men's attention to smaller details in design, was conversely expressed in the observation of women's practical shortcomings:

> I think I saw that more so in school, in my Master's program, as that the dropout rate for females was higher, and I think that some of them were struggling with like the nuts and bolts of it. Like they needed to know everything but for some reason it wasn't comfortable for them in a way….I think it may be because [the architectural program] was primarily focused on the practical solutions rather than being more conceptual and loose in a way. I think that in certain design studios, the ones that had the looser parameters had, and I felt like my female classmates felt more comfortable, and they in my opinion came out with better results when they were left to have more leeway in terms of what they could produce.

Not only does this participant claim that men are more practical, but that women actually struggle with this aspect of design and function much better with less structure (as seen in the previous statement from a female participant describing males as more structured).

A female participant expressed the similar sentiment regarding men's practicality, but believes that women have a better ability to give attention to both practical and sensitive aspects of design: "men tend to be more analytical and think with the side of their brain that is more bottom line, their money. They're focused on not just the bottom line, but how do I get from point A to point B and finish this building, and they do a great job of it. But women can sometimes use both sides of her brain better and say, 'look forward too— my kids are going to be here and I want to save this planet and can we make it work.'" Her feelings about women are similar to sentiments other participants shared about women's multi-tasking abilities and inclinations to empathize with others through many situations. She is not driven by a singular internal desire, but aims to understand the larger picture of design requirements and use influential acting variables to drive her design solution.

In the same right, **men also reported themselves to be more aggressive** in the design process. A male architectural designer said, "I mean, generally, I'd say [women] seem to have a

wider viewpoint on a lot of things and think in a more holistic way, certainly, in a less aggressive way." His belief about women's holism once again expresses the same sentiments of connection and multiplicity that other participants have associated with women. Another male participant, founder and principle of a sustainable design firm, also described a similar phenomenon: "You know, I do think that men in the industry perhaps can be prone to more sort of sports metaphors, winning and losing and doing an end run and everything else, whereas the women are more conscious of the conditions at play and the way the world is set up and just moving a project along." Once again, the ego is associated with the male gender, as the idea of winning or losing when designing is nothing but an expression of an autonomous desire for recognition rather then a desire to fulfill the contextual requirements. Again, women, according to this participant, are more process oriented, connected with the world, and communicative.

The overt discussion of 'ego architecture' also arose when participants thought about differences between men and women in design. Described as both a visual expression and a design process, ego architecture has assumed a dualistic paradigmatic association with the male gender: "I think it's interesting when you look at certain firms, and their architectural expression, you can see there's the testosterone architecture that's male architecture." Illustrated in further detail, a male principle at a Philadelphia architecture firm provides a case study of a male dominated firm that manifests male classifications:

> [the ego architecture is] a little more from…the male side of the spectrum. This is a silly example, but in Philadelphia this firm designed what was the predecessor of the Kimmel Performing Arts Center. [Our former principle] designed a building that was very comfortable in its environment and connected with the idea of the Avenue of the Arts, and was modest in terms of meeting a budget, and was both interesting and creative but also sort of fitting and appropriate. [The client] decided not to build that, and Rendell and Bill Rouse came in…Rouse liked to ride in on a white horse. I call them the testosterone boys…They said, 'Oh, you know, we need a grand project. This has to be a big expression,' and that's a male kind of saying I think, although women can do that, too. But in the end, we ended

> up with this heroic 'grand project' that just utterly did not work at all, and it doesn't do the things that it said it was doing, like creating civic space and engagement with the city at all. In fact, it's the opposite. So there, I think, that's always been true and there's always been a strong individualist ego side of architecture.

Though this participant provides an example of male architects who design from an expression of their egos, he also states that women also have the ability to act from this position and that not all men can be narrowly stereotyped as predisposed to creating ego architecture.

Though the majority of women and men participants acknowledged little difference between women and men in their design approach and outcomes, when differences were reported, they were consistent with social stereotypes embedded in cultural institutions. This indicates the continued existence of gender dualistic thinking among architects, and provides further reason to believe that more participants hold unconscious gender biases. Participant's perceived beliefs about gender differences in the architectural profession serve as a foundation to my analysis of male and female architect's believes about and approaches to sustainable design. Thus, I seek to compare conscious and unconscious patterns of gender difference by investigating gender-dualistic tendencies in sustainable design in contrast to reported beliefs about gender differences.

7.3 Top 5 Average Code Occurrences

To begin analysis of participant's beliefs regarding sustainable design, it is important to gain a broad understanding of what men and women in the design industry most frequently associate with and think about when questioned about sustainable design. By examining the top five average code occurrences for each gender, the most prevalent themes (influenced by the architectural profession, trade culture, popular culture, conferences, etc.) of sustainable design for each of the respective genders is uncovered. *Average* code occurrence is analyzed to account for the differing number of male and female participants. It is important to note that, though men and women mention a particular code a different number of times, it does not necessarily mean that they have qualitatively different beliefs regarding the code topic. Rather, code occurrence indicates the topic's presence in the participant's mind; the most frequently occurring codes indicate themes that are 'top of mind'.

Men and women most frequently mentioned the exact same codes four out of five times. The only code that differed between the two genders was the fourth most frequently occurring code for each group, 'Formation of Conception of Nature- Physical Location' for women, and 'Formation of Sustainable Design Philosophy- Education' for men. Thus, each code's meaning and relevance to the field of sustainable design will be discussed; gender will only be mentioned when male and female beliefs differ and a noticeable distinction must be made. Codes related to each of the Top 5 Average Code Occurrences will be mentioned and briefly discussed to provide additional context for highlighted codes.

Table 7.7 Top 5 Average Code Occurrences- Women

Code Name	Total Occurrences Average	Male Occurrences Average	Female Occurrences Average
Sustainable Design Philosophy- Appropriateness/ Need	2.72	2.68	**2.75**
Sustainable Design Strategy- Context	1.98	2.09	**1.88**
Critical of- Greenwashing	1.65	1.59	**1.71**
Formation of Conception of Nature- Physical Location	0.80	0.32	**1.25**
Sustainable Design Strategy- Site	1.26	1.45	**1.08**

Table 7.8 Top 5 Average Code Occurrences- Men

Code Name	Total Occurrences Average	Male Occurrences Average	Female Occurrences Average
Sustainable Design Philosophy- Appropriateness/ Need	2.72	**2.68**	2.75
Sustainable Design Strategy- Context	1.98	**2.09**	1.88
Critical of- Greenwashing	1.65	**1.59**	1.71
Formation of Sustainable Design Philosophy- Education	1.20	**1.55**	0.88
Sustainable Design Strategy- Site	1.26	**1.45**	1.08

7.3.1 Sustainable Design Philosophy- Appropriateness/Need

Categorized as a Sustainable Design Philosophy, due to its far-reaching ability to dictate an approach to design, the 'Appropriateness/ Need' code expresses the popular sentiment among participants that when designing sustainably, one must be sure that the design solution makes most sense and is best suited for the intended use. This philosophy rejects the application of superfluous 'green' technology and professed sustainable solutions that are not essential to the intended building's aesthetic meaning, function, and contexts. A registered male architect reported:

> We have these buildings that have 4 feet of space above the ceilings per duct, right? When we only have 8 feet to live in. I mean, another 4 feet just for ducting…Okay, so you're building massive amounts of steel, concrete and curtain wall enclosures just to hold the ducts. And then they have to do things like, well, if air's gonna carry the temperature and the humidity you need, first we have to heat because that's the only way to get the moisture out. Then, we have to cool it to make you comfortable…You know how much energy is being used for that?...So they have systems which heat, cool and then reheat. I mean, come on, this is just stupid….This is what our culture came up with 40 years ago and built everywhere, and it's the most energy-inefficient, the most unhealthy, impractical system.

The act of heating, cooling, and re-heating ducts in 4 feet of space with heavy infrastructure is fundamentally flawed in that it wastes energy and space, and thus, is an inappropriate approach to conditioning a building. This architect reported agitation at the continued disregard to search for the most appropriate solution given each context. He laments that architects continue to follow the problematic existing paradigm, using wasteful and archaic solutions to design problems that could be solved in a much more opportune way. Another female participant responded: "It doesn't make too much sense to put like an array of solar panels on a roof in the middle of the forest as there's no way the sun can get in, you know what I mean?" Similarly, a principle male participant rejects many architects' oversight of inappropriate functional decisions

that are concealed with the use of sustainable technology and advertised efforts to be environmentally conscious while designing. He believes that if a building does not fundamentally respond to the contextual variables, it will always remain an unsustainable building. He reported:

> Whether the electricity that's running a building system is coming from a wind turbine or a centralized photovoltaic source or a photovoltaic panels mounted on the buildings, that's electricity that could be powering electric cars, let's say. And if it's being used wastefully in the building, then on a systemic basis…It's wasteful, no matter [what]. Even if the building is completely, well, supposedly net-zero energy use because it's capturing all of its own energy, if it's using that energy wastefully, [it's wasteful]. It in fact is environmentally damaging. And the thing related to that is that if a building is not serving its function well, no matter how efficient the building is on a kilowatt-hour-per-square-foot basis, it's wasted energy, and that can mean one of several things. If a building is twice as big as it needs to be, even if it's operating at half the Bq per square foot of a building that's just right, it's still wasting energy. If the building doesn't serve its purpose well, if the building is badly designed, if a school building is a bad place to learn in, if a house is an unpleasant place to live in, no matter how efficient on an energy-per-square-foot basis or carbon-per-square-foot basis it is, it's wasting energy or wasting the environment.

Even the LEED rating system can be problematic when design solutions are not best suited to the contexts of the project and are implemented to reach abstract and disconnected goals. A male registered architect said,

> Oftentimes, we realize that we're going through the motions to get the LEED point, and it might be either formal tradeoff that LEED has where you're helping one thing but it's hurting another thing, the way that LEED defines tradeoffs, or other times, you feel like you're doing something that's somewhat asinine just to get the point and it's not necessarily helping you that much. An example of that comes down to things that we do to increase the energy performance of a building…that might cost a lot and that might not really gain you that much efficiency, and there is a certain, how would you say this, diminishing return on investment…So when you do the first chunk, you're saving a lot. But then after that, there is sort of an asymptote relationship where you're not getting as much return on what you're paying for, and all of a sudden you're spending a ton of money and you're only getting a very miniscule return on that.

An example of this mentioned by a female unregistered architectural designer is that of low-flow toilets that are so low-flow that they require additional flushes, actually using more water then a traditional toilet. She reported, "I feel sometimes we need to make decisions to get a point that we wouldn't necessarily make if we didn't need that point. Like low-flow toilets have been getting so low-flow that…they don't function, so at a certain point, I think you have to question is this functioning as I need it to first…Like if it's a 0.3-liter toilet but you're flushing it 3 times to make something go down. It's not really that sustainable, but on paper it would be. You'd get a LEED point for that versus a 0.5 [liter toilet] that you only have to flush once." Another example of the LEED program as inappropriate was reported by a male principle of a sustainable design firm who said:

> [LEED] encourages the use of inappropriate technologies in order to gain a point. For example, if one has a limited budget to do a building project, and one almost always has limited budgets to do building projects, and say one can spend 10,000 dollars on a photovoltaic system or one can spend 10,000 dollars making a building actually function better, and in the process of doing that actually require less electricity than the photovoltaic panels will produce. Encouraging spending the money on the photovoltaics is counterproductive.

Thus, it is important that the designer consider how the LEED points actually enhances the sustainability of the project and if money, time, and energy is most appropriately and effectively spent in certain areas rather then others.

A female principle of a conventional architecture firm defined sustainable design with the criteria of designing 'what makes sense'. She reported, "I think that a lot of sustainability is kind of common sense...In that maybe you don't build a glass box in a really cold climate or in a hot climate. Like you sort of don't try to swim upstream. You don't try to find the hardest solution, but the one that's maybe easiest. And those are the some of the hardest ones to find, to identify those solutions, but like local, or the simplest." An example, mentioned by a male principle of a

sustainable design firm, of avoiding these inappropriate design solutions through attention to contextual variables is addressing the user's needs and aiming to reframe them within more sustainably appropriate parameters:

> Someone saying they need a 5,000-square-foot home, you could go and look at it and say, 'Well, actually, can't you live in 1500 square feet? What is it that makes you feel like you need 5000 square feet?' And if you take the time at the very beginning to address some of these issues from a sustainable perspective, you can begin to do things where just the kind of stuff that's going into the building, materials that are going into the building, can be halved in some cases just by addressing the fundamental issues...how [do] people spend the time when they're in their home. Are there rooms that only get used once a year for when they have a special dinner party? And do you even need that room? Instead, can we look at a way of adopting your regular dining room or living room to accommodate that once- a-year event.

The concept of appropriateness applies to the overarching conceptual motivation for an entire project. A female principle of a sustainable architecture firm discusses her belief that though sustainable design has quantifiable goals and is often regulated by a set of criteria, the driving idea behind a project must be determined on a case-by-case basis, by each project, user, and site's unique conditions. She said, "I think that having the building be more of an expression of what the client is really looking for is more important, I mean, than exactly how much water you've saved…I don't think that water conservation is more important than energy conservation or material conservation. We try to do the most appropriate." In the schematic design and programming phases, she aims to understand what solution will have the greatest impact and determines priorities based on these conditions. Similarly, a male principle at the same firm also believes that solutions depend on many variable conditions: "I don't think there's one that you can sort of say is the most important thing globally…Just like any other design issue, you wanna do the right thing for the project, the program, and the site that you're given." Another male principle at the same firm also said, "It's more getting down to, well, 'is a geothermal system the

right fit for this project? And here are the pros and cons,' and sort of doing it in a conversation versus us trying to force something and say, 'a geothermal system is a must on every project we do.'" Participant's solutions to sustainable design were largely tied to the understanding of this essential philosophy of appropriateness. They understand that sustainability cannot be treated as a systematic application of standard solutions or sustainable technologies. To participants who mentioned, 'Appropriateness/ Need', sustainability cannot answer a set of requirements. By their definition, it responds to variable sets of design criteria for each project: "I think it's hard to really pigeonhole sustainable design into a certain aspect, like technology that's sustainable...I think, like you said, there are opportunities where one becomes more important than another depending on whatever the local conditions are. But I think that sort of the key is that it's not this universal standard that is just used everywhere." Appropriateness implies careful consideration of all aspects of the design, a sentiment that represents a holistic design approach, in which one part cannot be considered more important then the whole. An influential figure in sustainable architecture, a male principle at one of the sustainable design firms profiled in this study, believes:

> [architecture] needs to be more durable. It needs to be as efficient as possible, sort of in terms of operating cost and so on, and it needs to be appropriate in terms of its sort of cultural or aesthetic context, and sort of buried in those issues in a sense. I mean, to me the building performance issue is just part of good design process. I mean, it's really a part of the functional performance of the building, but normally when people think of a building program and function…They think about circulation and number of square feet per person and stuff like that, and that's part of it, but the daylight and ventilation strategies and thermal comfort, all of that are, I think, very much part of the building's function as well, and so are building systems.

To this participant, building performance applies to more then program and function. It encompasses the aesthetic, social, and environmentally contextual needs of a building as well, referencing the entire scope of the projects demands and prioritizing efforts appropriately.

Critical of Ego Architecture

A theme, related to 'Appropriateness/Need' that participants mentioned was skepticism of architecture derived solely from the ego of the architect. 'Ego Architecture' refers to that driven by the mind of a single genius architect motivated by his desire for autonomy. The overwhelming majority of participants who mentioned 'Appropriateness/Need' also mentioned 'ego architecture' as a problem that perpetuates inappropriate design solutions that do not fit the environmental, cultural, social, and functional contexts. A male principle of a sustainable design firm claims good architecture (especially sustainable architecture) cannot exist when conceived through the mind of a sole creator:

> It's just I think that the way a lot of architects work is kind of, I would say it isn't really practicing architecture. I would say that it's something that is closer to fashion than it is to architecture….If all you care about is the shape of the building, the colors of it or the materials on the outside…on the more superficial level [it is] something closer to fashion, maybe on a more refined level…closer to sculpture. But I think that you can do work that is very admired in all those areas, but according to my definition, it isn't architecture if you are not considering these other things.

This participant requires that variables drive the development of a building more than an abstract mental construct represented through formal manipulation. Using his firm as a counter-example to 'Ego Architecture', one registered male architect responded:

> Local context is very important to us, and that's one of the fundamental components of our designs, is being true to the context and really being cognizant of the environment that we're building in and being responsible and respectful to that. So from a design standpoint, oftentimes our buildings are more architectural and less object-oriented. I think that in some way it's sustainable…doing a blob or whatever that might be beautiful on its own right but really doesn't respond to the context whether it be the scale, the materials, it's architecture but it might not necessarily belong there.

Thus, according to participants, appropriateness and 'ego architecture' stand in opposition. Whereas 'appropriate' design solutions rely heavily on attention to contexts holistically

prioritizing the larger picture, 'ego architecture' focuses on one particular element of the design, which reflects an architect's autonomy.

7.3.2 Sustainable Design Strategy- Context

The second most frequently mentioned code among both male and female participants was 'Sustainable Design Strategy- Context', which relates to 'Appropriateness/Need' in that participants believe the designer must address the most appropriate design issue for a particular project based on the given contexts of the problem. A male principle and architect of a sustainable architecture firm said, "I use the definition that sustainable design is the appropriate response to site, but I define site really broadly, because I think site includes the sort of physical characteristics of its location, but it also includes historical context. It includes cultural context. It includes a whole host of things that are not just what you get on a site plan." He continued to say, "If you're building in the desert, that's different than building in the human [realm]…You know there's all of those things, and I think you have to factor all those in before you can figure out what the right strategy or strategies are for each". According to participants, attention to context is integral to the achievement of appropriate design solutions that are as least wasteful as possible. On this subject, a registered male architect working at a conventional architecture firm reported:

> The best way to do things is to understand the environment in which you're building in…So, my response to the environment isn't gonna be one of, 'Let's find the super-technology that will solve the problem.' Like I don't find that that interesting. I would rather figure out like why is the porch facing south [environmental context]...I also feel that for building to be truly sustainable, it has to be responsive to social and cultural context just as importantly, because it's gonna get torn down if it doesn't, and that's more wasteful than not getting built at all. And [it is important to] not just focus on one. Like if you skew yourself just towards answering the environmental factors, you can lose the cultural and the social impact.

Thus, 'context' encompasses the entire spectrum of external variables that can influence the decisions made in the design process. This participant believes it crucial to consider all contexts to understand the larger scope of a project's needs as a whole rather then as fragmented parts. He is then able to determine the most appropriate design solution to prioritize given the contexts.

Though social and cultural contexts are critical factors to consider, many participants simply discussed context as synonymous to site. In terms of achieving sustainability, many considered environmental conditions acting upon the building's intended site as integral to the planning process. A female principle of a conventional architecture firm said:

> I just feel like the site kind of tells you what it should be...When you start a project…you're trying to identify the question. You're trying to really figure it out. And I think that something that's site-specific is the same thing. You're trying to figure out the question of the site, if that makes any sense at all. I don't know…By the site, by tree, by sun, by the weather. By all of that. I think that really tells you so much in advance. When you think you're sitting with a blank piece of paper and you have a house to design, you don't, actually. You have so much more information already to start…It nourishes you. It reminds you that you're a part of a larger context.

Starting a project from this position allows a designer to develop appropriate concepts that emerge from a specific place, and thus, are more sustainable. A registered male architect extends the definition of site to include manmade context as well. The participant's response draws ties between social and cultural contexts and environmental contexts, as environmental contexts created through human interventions represent societal traditions, which architecture should also respond to and serve. On the issue of sustainability in architecture he reported, "I kind of think of it more in the form of context architecturally, responding, reacting to being informed by the context around you, whether that's the context of an the urban setting if that's what you're working on or the context of a more natural organic setting. I think taking cues from your environment is something that architects and designers do and should do all the time."

Let Place Speak

A related concept, which builds off the premise of using contextual cues to inform sustainable design solutions, is letting essential qualities of the context emerge naturally. By 'letting the place speak', the designer gains an understanding of what the environmental, social, and cultural contexts require from the intended building, and what she could do to make the most harmonious intervention as possible. A male principle at a sustainable design firm does just that when beginning a new project. He must become familiar with all the natural forces at work and in the initial phases, takes a step back to listen:

> One of the things we talk a lot about is genius loci or spirit of place. From the onset of any specific project, we'll spend a lot of time taking a moment to listen to not only what the program is but what the spirit of that site is, or if we have a choice in sites, what each of those natural environments offer. So looking not only at things like orientation and exposures and topography and things like that, but going beyond that to other broader social or cultural issues that might play a very important part in the design decisions that are being made.

The architect discusses the benefit of making a personal connection with the site by allowing it to directly inform his decisions in multitudinously direct ways. A female principle at a conventional architecture firm offered a similar description of site evaluation to inform her design process:

> Somebody once said that when they visit a site, they feel it in their feet. And I feel that way very much as well, that going out to a site and sort of assessing, feeling what, like where do you wanna be on a site. Do you wanna be high? Do you wanna be low? Do you wanna be on this side, on that side, in the sun, in the shade? I think that the site sort of informs the architecture so much more than us going in and saying it should be this.

Though described in various ways and at different scales (including environmental contexts, or more broadly social and cultural contexts), participants agreed overall that context is a critical consideration when asked about sustainable design.

7.3.3 Critical of- Greenwashing

The third most frequently mentioned theme by both men and women references their skepticism of the popularized concern for sustainability. As the media has created a buzz around environmental issues in recent years, more and more architecture firms have publicized their uses of green technologies or incorporation of other sustainable design strategies. However, many participants expressed concern that many accounts of 'sustainable design' are not actually 'appropriate' solutions, and instead simply use sustainability to attain credibility in the eyes of the client or other design professionals. A female participant, principle of a sustainable architecture firm fervently asserts we must be careful of "all the bells and whistles…A lot of it tends to be in terms, the word green, you know, architecture or green with this and green that really needs to be sort of eliminated from our vocabulary. It's like, it should just be what we do." She wishes for true and appropriate integration of holistic design considerations (that include environmental, social, and cultural responsibility) rather then fancy integration of visible 'bells and whistles' or unnatural public attention drawn to a building for its fulfillment of one of many fundamental needs. According to the participant, in an ideal world, architects should draw no distinction between sustainable design and good architecture. Steps taken toward achieving the most sustainable project should include consideration of all contexts (environmental, social, cultural) rather then apply supplementary components to qualify the building as sustainable.

The idea of 'greenwashing' reflects a notion similar to that of 'appropriateness'. To avoid it, a designer must carefully consider all contexts and determine the best-suited design resolution rather then make isolated decisions. 'Bells and whistles' refer to the use of technology or sustainable strategies for the sake of 'green marketing' and the architect's peace of mind. Though a solution might be considered sustainable, it is often not the most effective approach to

achieve a truly holistic building. An unregistered male participant working at a conventional architecture firm said, "People will claim something's sustainable when it might have a water harvesting tank or something on the roof…But I mean, you actually look at the building and there's nothing really different about it." Architects are aware that the industry and larger society as a whole is increasingly demanding attention to environmental responsibility. Thus, many firms seek to incorporate a philosophical position about sustainability into their firm's mission, regardless if it is accurately reflected in their projects. As seen in the participant's example, a water-harvesting tank is a sustainable design element, but does not suffice to qualify the entire project as a sustainable building (no one thing is). Simply pursuing sustainable architecture due it is industry relevance through supplementary additions was a big concern reported by participants critical of greenwashing. A male principle of a sustainable design firm explained:

> There's been many people, especially in the last 5 years, that have sort of jumped on the green bandwagon and have capitalized on opportunities to be involved in a consumer culture that is more focused on selling more stuff. So even if that stuff is green or being sold as green, it's still more stuff…And when that approach is addressed at the very beginning of a project as opposed to, 'Let's design a building, and then now let's figure out how to make it green,' it has a very different effect on the way the whole project is designed and conceived. So, especially, there's many developers who, as this became an increasing trend, would continue to build buildings in the same way that they had been, and then they'd say, 'Okay, now let's try and get it LEED certified,' or 'Now let's add these bells and whistles so that we can market the greenness of the building,' when in fact the building itself wasn't green.

He is bothered by the disintegration of sustainable considerations from the fundamental design process and the resulting 'bells and whistles' that do not address the building's essential needs. However, it can be assumed that this participant has little knowledge of green building certification, as buildings cannot receive a LEED certification without involving a commissioning agent at the start of the design process (to ensure against superficial interventions). Regardless, he still reflects an interest in the integration of sustainable

considerations from a project's conception. Another male participant described these 'bells and whistles' as 'appendages' that architects slap onto buildings to qualify it as a sustainable rather then fundamentally examining the most appropriate design solutions given each project's contexts:

> Whether it's a rainscreen or even a triple façade or obviously a green roof or fins on the side of a façade to help shadow. I think, yeah, there are a series of oftentimes, for lack of a better word, appendages that get stuck onto buildings, and again, for me that's not really good design…If your only solution to dealing with shading is to slap on a little hat, so to speak, I think there are more creative ways to do that...I think it's everything that you don't see. I think it's the building materials that you choose, it's the insulation, it's the layout of your program. So in a most basic sense, you put spaces that need fresh air and natural ventilation around the perimeter, you put support spaces in the center, and that's certainly not new technology or a new idea, but those are basic fundamental things that can help without slapping on those appendages.

Participants believed these 'appendages' of sustainable technology and new solutions can be expensive and thus, accessory to fundamental architectural decisions that maximize a building's longevity, functionality, and efficiency. Before green 'bells and whistles' are added to a project one must consider the architectural appropriateness of the design solutions.

> If somebody doesn't have a budget to do like all these, like, green bells and whistles, if you can give them a building that's efficient and just smart use of space and is flexible and that's gonna last forever, that's more important than any other thing that you can do…If you don't have solar panels or you don't have these technologies, I think oftentimes people might say, 'Oh, that's not sustainable'…I mean, I think you look at the publications and you look at the buildings that are winning awards or being sustainable, like you're seeing buildings that have a wind turbine. And it's like this stuff is great and I love it, like they're pushing the envelope and doing things, but if they're just putting things in the building to get LEED points, then that doesn't excite me. I don't think that's good architecture.

Participants critical of greenwashing advocate the appropriate integration of sustainable design solutions when it makes most sense given the contexts of the project. The addition of a wind turbine or even a certain level of LEED qualification does not guarantee an appropriately

sustainable building. A male principle of a sustainable design firm expressed a similar sentiment: "A lot of people really go after the sort of whiz-bang features that are very highly visible… It turns into a form of greenwash if you don't have the fundamentals right. If your building doesn't deserve to have photovoltaics on it, then putting a little photovoltaic canopy over the entrance of a fundamentally wasteful building is kind of embarrassing to me." These reports indicate participant's concern that green technology and elaborate solutions are used solely to generate more money and build more projects, a concept theoretically antithetical to the roots of sustainability.

Additionally, a female unregistered participant also discussed the ambiguity that results from greenwashing: "In the architecture profession we hear the most about [reclaimed and recycled materials] because every product rep that's out there is trying to sell something…It's like, 'Let me come in and tell you about how my flooring is 25% recycled. And I just don't think that's really…gonna save us.' The participant expresses dissatisfaction with the industry's casual and deceptive presentation of products as revolutionary because they are 25% recycled. To her, 25% is just not enough and will never result in the substantial shift that must occur. The fundamental problem of greenwashing is that it allows people to celebrate inappropriate sustainable initiatives and solutions that are not truly holistic. It reduces credibility of the term 'sustainable' and obscures its rudimentary essence of holism. Misunderstanding of the LEED program can similarly contribute to greenwashing, as described by a male participant:

> Not enough people are well-informed about what good sustainable design is or even what LEED is, and so oftentimes you'll get a product rep that took the exam and is LEED AP, and they talk about how there is a green product or a LEED product. There are no LEED products. There are credits that you can pursue that receive LEED rating, but there are no LEED products, and so I think people like to tout that as, 'Oh, we're LEED,' but what does that really mean?

Loose interpretation of and poor education about the LEED rating system perpetuates the problem of greenwashing and continues to impinge upon a true industry understanding of sustainability. And more broadly, disparity among design professionals and other industry stakeholders regarding the place of sustainability in architecture, including green marketing initiatives that celebrate mediocre attempts, limit the entire architectural professions' progress toward a new paradigm of environmentally responsible design.

A male principle of a conventional architecture firm sees sustainability as an expression of good architecture, rather then something that should be understood separately or given special attention to as a distinct part of the design process. A basic understanding of sustainability as inherent in the design process from start to finish could help to eliminate greenwashing and industry confusion influenced by green marketing and desire for profit. The participant reported: "Independent of the semantics of it, I guess, what to me it encompasses is actually all the stuff that I think good architecture should be doing anyway, so I actually think that, and I think we're all moving toward the point where it won't be in some respect in and of itself a thing that you identify." His ideal of sustainability provides the alternative to both men and women participant's criticisms of greenwashing. They overwhelmingly agreed that the architectural professions' conscious or unconscious manipulation of sustainable goals, driven by ulterior motives of profit, recognition, and industry pressure, only creates a problematic false representation of the true end-target. Thus, a deeper integration of sustainability in the elementary roots of a project is critical.

Critical of Technology

The aforementioned 'bells and whistles' often refer to the use of technology for sustainable solutions. Though not one of the top occurring codes, the 'critical of technology'

code is related to the 'critical of greenwashing' code in that participant's often perceived technology as standard and often inappropriate response to industry pressure to create environmentally responsible architecture. Like the generally described 'bells and whistles' or 'appendages', technology is an example of a sustainable design solution that participant's believe is often supplementary, added onto a building to make it more 'green'. Unfortunately, this fragmentation results in a much less sustainable building than if sustainability was considered an integral part of the design from preliminary stages and technology was viewed as a tool (rather then a solution) to reach the most contextually appropriate outcome. A male principle of a sustainable architecture firm reported, "there's a lot about sustainable design that is really just good design practice, some of which we've sort of forgotten, and some of which people still or have always thought about…you can't just design a building and then slap a bunch of technological solutions on to make it energy efficient." He believes technology must be integrated into the ultimate purpose of the building, not become an afterthought. A female principle of a sustainable architecture firm dispels the myth that a sustainable building must integrate technological solutions. Instead, she believes that the most sustainable building is one without any technology: "Well, I think, yeah, certainly a lot of these buildings are becoming super technology buildings. And really, you can have a really sustainable building without any technology. I mean that's probably the best situation." A male architect, principle of a sustainable architecture firm, agrees that technology should neither be treated as a detached solution nor specified without an understanding of the contextual architectural foundation. He reported, "I would say that technology is down in the list of designing sustainably, that initially it should be about passive techniques. And then, once the building envelope or building siting is designed, sort of do whatever you can without any technologies, and then you later on add technologies

depending on the goals of the project." In this context, the participant defines technology as "active" technology, as technology is required for passive systems as well. Technology is merely the application of science. Multiple additional participants also reported ("active") technology as a secondary solution. Relying on fundamental architectural decisions assures an appropriate response to the contextual problem rather then a use of technological solutions for the purposes of advertising, media-attention, or theoretical celebration. Accordingly, a male architect participant stated, "I think architecture's always gonna be impacted by technology and advancements in technology. But I don't think it should necessarily be driven by those advancements."

7.3.4.a Formation of Conception of Nature- Physical Location (women)

Women frequently mentioned time spent in a physical location as influential to their ideas about nature. They reported gaining a deeper respect for and appreciation of nature through every day experience living in communities integrated with nature, in places such as Brazil and mountainous regions of Colorado. They also reported gaining a new understanding of nature through observation of native's cultural customs and their relationship with the natural environment. This code will be discussed in further detail in the Formation of Beliefs, Solutions for Change section of the results chapter (see pg. 168).

7.3.4.b Formation of Sustainable Design Philosophy- Education (men)

Men mentioned education as a formative force that contributed to their broad understanding of sustainable design. In these contexts, education occurred through required courses about sustainable design technologies, influential professors who served as mentors promoting a certain philosophy, and opportunities for individual research. This code will be

discussed in further detail in the Formation of Beliefs, Solutions for Change section of the results chapter (see pg. 173).

7.3.5 Sustainable Design Strategy- Site

The fifth most frequently occurring code, for once again both men and women, is a more specific interpretation of attention to context. Regard for a building's site as a sustainable design strategy demonstrates the importance participants place on the physical parameters of an intended project. As mentioned, many participants categorize context primarily in terms of site, which does not include social or cultural considerations. Though sole attention given to site remains a fragmented piece of contextual awareness, it reinforces participant's most frequently mentioned sustainable design philosophy, 'Appropriateness/ Need', in that an architect's ability to design from environmentally contextual clues results in the most place-based, and thus, harmonious and least destructive design solution possible. A female principle of a conventional architecture firm said, " I think we always look to find what's the best way to look at the site, whether the site is a building, an apartment, an office or pure piece of land…So, if there's an existing condition, how can we use the existing condition to its best aspect?" Rather then propose an external, isolated concept, the participant believes inspiration should result from an examination of the existing. Another female architect working at a sustainable architecture firm reported:

> Integrating landscape into buildings…just seemed to be the right thing to do and the more interesting thing to do…I mean, I love the idea that you arrange buildings specific to that place, and so your south facade doesn't look like your north facade or your east or west facade. It seems to me that these kinds of issues are much more meaningful in generating a design solution than more fashionable ideas, what a building's gonna look like.

By granting attention to site, the designer is able to make the building more appropriately and independently respond to environmental forces acting upon it from each direction. Men similarly responded, noting how weather conditions affect the design outcome. An unregistered male participant mentioned the most critical factor related to a building's site organization to be "the exposures, like heat loss, heat gain, in terms of optimizing…site planning through just being really efficient with…floor plan." Another participant, a male principle of a sustainable design firm, discussed an example of a project he designed, which was solely dictated by site-based variables. In addition to practical concern for local weather conditions, he discusses the necessity to address the effects of site-based issues on the user's experience of the space. He reported:

> But it also seems to me that there's actually an enhancement in the experience of architecture in feeling more connected with the sun, with the seasons. We had a very interesting thing happen in I guess it was the mid-90s. We designed a little library in Jamaica, Queens, and it was the first building that was built in the New York City High-Performance Building Program. And because of the site configuration, the way everything worked, there was almost no opportunity for windows on the walls except in the front. It was actually built at the property line on 3 sides…But it's a little building. We put in a whole series, well, the whole roof is basically light monitors, and in order to minimize the amount of glass area that we needed to have to get in adequate sunlight, we faced them south. You should never face windows south…But we also put in a combination of a reflecting light shelf, and then a white diffuser, on the inside so that no direct sunlight actually got down to the floor. But also in doing that, we realized that obviously with the south-facing windows there was a potential for serious overheating in the summer. So we put in automatic shades on the inside of the monitors that were also connected to the heating and HVAC system…So in the winter the system just, it had a 2-way switch on it, and if the air conditioning system is operating, it goes into basically summer mode where photo cells inside the building raise and lower the shades- just up to about 50-foot candles is allowed down on the work surfaces. In the winter, they go up and they stay up, so we'd get as much light in as we can, and then there was a heat recovery system that distributed the solar-heated air around the building. So with a few very simple controls, we got a daylighting system that limited the daylight to just what was needed in the summer, and then became a direct solar gain heating system in the winter. Almost doing what I would assume a building operator would do, a building user…If they had enough time to run around and pull shades up and down and all that. What I hadn't anticipated was the effect of the changing quality

> of light in the space with the season, and after about a year and a half of operation, I was out for some check on the systems of it, and the librarian came up to me and she said, 'You know, what's wonderful is that in the summertime, it's almost like coming into a growth of trees or something, that the building compared to the outside light is quite dark, I mean plenty of light to read and work and everything, but you feel like you're coming into a cool shaded area, and in the winter it's brilliant inside and you come into this sunny area.' And what I realized when she said that is that a building that responds to season and to what's going on also has the ability to create the kinds of spaces that you would sort of seek out if you were in the natural environment. And a building that essentially works with natural forces and recognizes the demands that it's trying to meet in terms of human needs, I mean in the winter we want our buildings to keep us warm, in the summer we want our buildings to keep us cool.

This architect's example demonstrates the benefits of both designing with regard for a site's environmental contexts, and working within those parameters to achieve the most appropriate design solution. The limitations of the property boundaries creates difficulty for the architect to respond to weather conditions (given south facing windows often result in harsh lighting and overheating). However, careful consideration of the site's restrictions enabled him to reach the best-suited solution using simple technology that responds to the external changing environment and enhances the connection between the user's experience and the surrounding natural environment.

In totality, these themes, commonly expressed by both men and women architects represent the popular definitions and approaches to sustainability shared among participants. Aside from the 4th most frequently occurring code, upon which men and women differ, attitudes about broad ideas of sustainability are fairly consistent. These ideas reflect popular belief regarding sustainable design learned from current discourse, firm attitudes, media, etc. To summarize, the guiding principle and definition of sustainable design refers to the buildings ability to respond to contextual needs (including site) in the most appropriate way without superfluous use of 'greenwashing'. This entails place-based, community-based, design solutions

that are integrated into the design processes with efforts to better both the human experience and the surrounding natural environment.

7.4 Top 5 Similarities in Code Occurrence by Gender

That the top occurring codes for both male and female participant groups are so similar indicates the overall high industry prevalence of the described themes. Accordingly, when examining the top 5 similarities in code occurrence by gender, it is found that many of the top occurring codes are also the top similar codes by gender. To obtain the most frequently occurring similar codes reported by male and female participants, the top five smallest deltas between number of male and female code occurrences was obtained from a list of statistically significant codes (average code occurrence greater than 0.5). Average delta was calculated according to averages of male and female code occurrence to account for the differing number of male and female participants. The codes Sustainable Design Philosophy- Appropriateness/ Need and Critical of- Greenwashing span both lists. To avoid redundancy, these codes will not be revisited in detail, but will be discussed in context of gender similarities. The Architectural Identity Map

shows all top similarities occur in the interests circle, indicating male and female participants share motivating forces behind design and design philosophies regarding sustainable design.

Figure 7.3 Architectural Identity Map Top 5 Similarities in Code by Gender

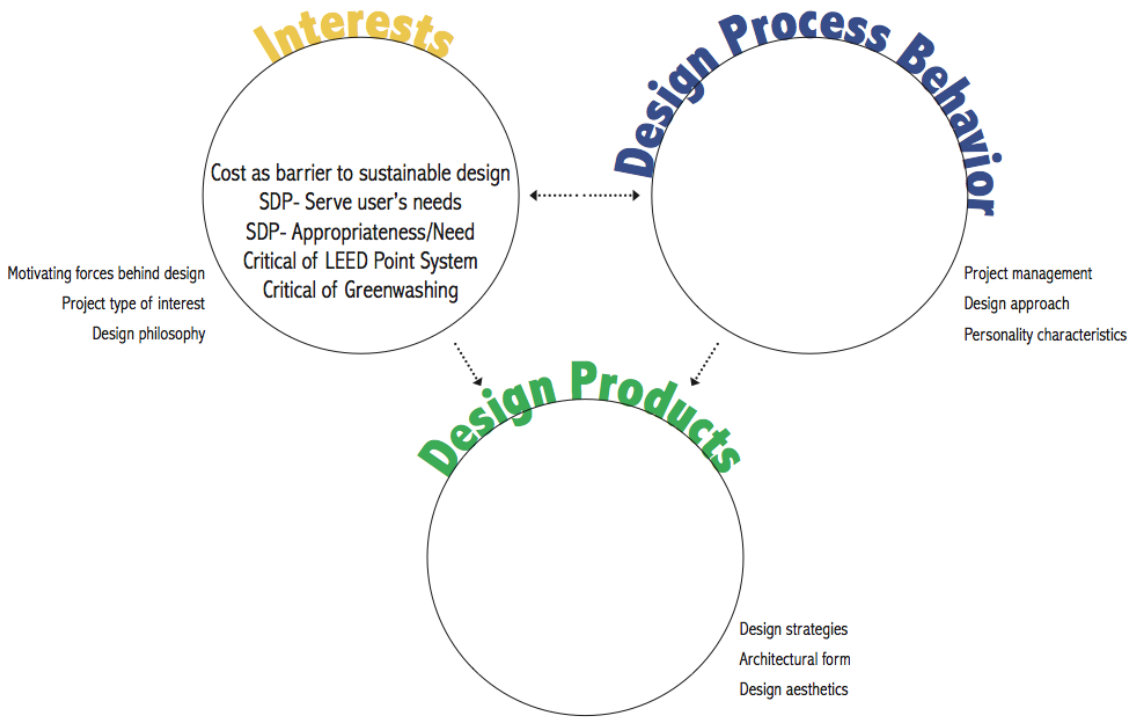


Table 7.9 Top 5 Similarities in Average Code Occurrence By Gender

Code	Total Occurrences Average	Male Occurrences Average	Female Occurrences Average	Gender Delta Average	% Gender Delta Average
Barriers to Sustainable Design- Cost	0.96	0.95	0.96	0.00	**0.40**
Sustainable Design Philosophy- Serve Users Needs	0.87	0.86	0.88	0.01	**1.31**
Sustainable Design Philosophy - Appropriateness/ Need	2.72	2.68	2.75	0.07	**2.51**
Critical of- LEED Point System	1.11	1.14	1.08	-0.05	**4.78**
Critical of- Greenwashing	1.65	1.59	1.71	0.12	**7.11**

7.4.1 Barriers to Sustainable Design- Cost

The top code shared by both men and women expresses participant's beliefs that the largest obstacle preventing the growth and popularity of sustainable design among clients is their perception that attention to environmental responsibility in architecture is more expensive. A female participant at a sustainable architecture firm stated: "I think most things in life come down to money...Things are expensive and if somebody can do it cheaper and it is less green, then they're going to in most cases." A male principle of a conventional architecture firm similarly asserts the emphasis people place on practical over moral concerns: "the challenge we always have is just clients who can't afford to do [sustainable design]" He believes many have little concern for protection of the natural environment, continuing, "oil costs x a barrel and then, suddenly, everyone becomes environmentalists very quickly…Nobody really cares what it has to do with the environment but they just want to know that they're not paying x amount of money a month on utilities." This view perpetuates the belief that clients will continue to make decisions from an egotistical, economic position rather then an altruistic position.

Participants also acknowledged client's hesitation to invest in sustainable design due to their inclinations to satisfy immediate desires. A male architect at a conventional architecture firm stated:

> Even with all the people talking about life cycle cost, the bottom-line comes down to, "I have x dollars in my bank account and that's all I have to spend." And it doesn't matter if I'm talking as an individual, if I'm a CEO representing my shareholders or if I'm a developer with investors. There's only so many dollars to spend and you've got multiple objectives. Everyone has to look at the first dollar cost…Even when I pay $45,000 for my photovoltaic panels, and man, I couldn't take my kids on a vacation or do something else that I wanted to do.

Similarly, a female architectural designer at a conventional architecture firm responded: "It is complicated…in a sense, [cost] makes [clients] not really want to deal with [sustainable design]: 'Oh, no, no, that's gonna take so long or that's too expensive. I'd rather pay my water bill.'" These participants believe that clients make decisions based on immediate economic practicalities. They look at the multiple ways their money could be spent and try to prioritize accordingly, but more often then not they make the decision based on 'first dollar cost.' They value immediate rewards rather then invest in spending extra money on sustainable design solutions that have longer-term paybacks.

Thus, participants acknowledged the need to educate clients about the importance of investing in sustainable design's higher upfront costs that will have long-term paybacks. A male principle of a sustainable design firm stated:

> Well, certainly everybody thinks it's more expensive…and it certainly doesn't have to be if you look at the life of the building. We're lucky, actually, in some ways that a lot of our clients are, the buildings that we're doing for them are their buildings, and they're gonna keep their buildings, and it might even be the only building that they build in the foreseeable future…Certainly, you have to factor in cost and relative costs, and also sort of cost over time. There's lots of things you might implement that cost a lot initially but over time will actually save them money. And so you try to have those conversations and try to have as much information as you can to make an argument as to what you think is the best way to proceed.

As previously mentioned, one female architect at a sustainable design firm reported how difficult it is to have clients invest in sustainable design for moral reasons. She thus, finds it more successful to educate them about the long-term rewards. She stated: "It's really hard to try to convince them saying, 'It's good for the nature.' Or, 'It's good for the environment.'… So, you try to convince them in a longer span. 'In 20, 30 years, or 50 years from now, it will be very

beneficial for you.'" If sustainable design is to increase in popularity it is the architect's responsibility to better educate the client about long-term payback and the economoic value of investing in such initiatives. This barrier to sustainable design was the most commonly reported obstacle by both male and female participants, representing the primary reason for widespread resistance to a new paradigm.

7.4.2 Sustainable Design Philosophy- Serve User's Needs

The second most similar codes shared by men and women participants recognizes the architect's duty to serve the user's need and qualify this obligation as a requirement to achieve holistic sustainable design. The designer's goal to promote one aspect of sustainability is to make the user happy and comfortable in her space so she identifies with and enjoys it more. These participants reported positive user-designer congruency (including comfort, productivity, health, etc.) as critical to sustainable design objectives, in that they provide a lasting environment for humans. A female unregistered participant said:

> Sustainable design is definitely not really just about the environment for me. I mean, it's definitely a massive part of it especially right now. But social sustainability is I think as important. You don't really wanna live somewhere if it's a bit crampy…I guess just making places that people can relate to and enjoy...I feel like also sustainable design is not just really designing as an architect but like having a sense that you're actually designing for somebody and maybe working with people that you're designing for to really understand what they want.

A male principle of a sustainable design firm who expressed a similar sentiment was able to provide context that helps explain the ties he draws between sustainable design and user satisfaction. He reported:

> I also think that you can have a LEED Platinum building…It can be the most energy efficient building that you can build, and if you're not designing a place that works for what it's intended to do, it's not very sustainable either because no one's gonna be there and no one's gonna take care of it.

User satisfaction refers to social sustainability in that the more attention an architect gives to making the user feel empowered with ownership over the building, the longer it will be inhabited and protected. Thus, serving the user's immediate needs but providing a building that could serve multiple functions over time directly relates to the longevity (lifecycle footprint) of a building and thus reflects environmental responsibility. Designing for user needs can be realized in a variety of ways that ensures a higher level of user satisfaction as described by a female architect: "We do a lot of designing and detailing of building for energy conservation, for indoor air quality, and improving spaces so that the occupants really want to come to work because they like their work, they like their space, and it takes advantage of the natural topography." She continues to describe the process to achieve a congruent design outcome, which requires the architect's understanding through a close relationship with the client: "We really try to talk to our clients to understand how they use [the buildings] so they're practical they're functional, they're not frivolous architecture." Involvement of the user in the design process aids the architect to understand the full scope of the project's requirements and address them properly to achieve a not only an environmentally sustainable, but a socially sustainable building.

7.4.3 Sustainable Design Philosophy- Appropriateness/ Need

Both male and female participants agreed that a uniquely appropriate design solution must be applied to each project, determined by the given contexts. This principle was found to be the fundamental definition of sustainable design commonly shared among participants. No further gender distinctions can be made regarding these attitudes.

7.4.4 Critical of- LEED Point System

Another popular theme that both men and women participants mentioned frequently was their skepticism of the US Green Building Council's Leadership in Energy and Environmental Design (LEED) Point System. LEED is a

> framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions… LEED certification provides independent, third-party verification that a building, home or community was designed and built using strategies aimed at achieving high performance in key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality (U.S. Green Building Council, Par. 1).

Many participants related their criticism to the possibility to fulfill LEED criteria and obtain points, without using the most appropriate sustainable design solution. A male principle of a sustainable design firm reported: "You can design a LEED-certified building that isn't actually very responsible for its site or its program or its budget." One female architect's example of a design detail demonstrates the possibility of integrating solutions that result in the fulfillment of LEED points without fundamentally reducing the environmental impact of the building. She said, "some of the points you get for trying to achieve a LEED certification, to me there silly because it's like, you get credits for putting the bike rack outside your building in different locations for people that bike, but then you also have got to provide showers for these people because they get hot and sweaty but then you've also got to build extra water and extra plumbing." In this case, achieving a LEED point for bike racks, which encourages carbon neutral transportation, creates an additional opportunity for increased resource consumption. Thus, integrating bike racks to achieve LEED points when it may not be the most appropriate solution (a non-bicycle friendly environment) undermines the efforts of the program itself. A male

principle of a sustainable design firm provided another example of inappropriate solutions regarding the promotion of technology to achieve LEED points. He reported LEED:

> Encourages the use of inappropriate technologies in order to gain a point. For example, if one has a limited budget to do a building project, and one almost always has limited budgets to do building projects, and say one can spend 10,000 dollars on a photovoltaic system or one can spend 10,000 dollars making a building actually function better, and in the process of doing that actually require less electricity than the photovoltaic panels will produce. Encouraging spending the money on the photovoltaics is counterproductive.

He believes LEED always encourages choosing the technological solution, which provides a visual demonstration of 'green' design, but believes this problematically contributes to 'greenwashing' and inappropriate design solutions that do not fundamentally address the core of the design problem.

A common sentiment regarding LEED solutions as inappropriate, is the fragmentation of what should be an integrated and holistic design process into a checklist. Participants believe that the checklist format inhibits architects from understanding the most appropriate design solution and can lead to 'greenwashing' in that it enables architects to make isolated decisions that fulfill criteria without addressing the larger picture. A female principle of a sustainable design firm reported: "I think that's one negative is that people just think of it as a checklist applied to a normal design without thinking of the whole integrated holistic building or design process." Furthermore, another female architect expressed concern that desire to achieve LEED qualification and the pursuit of fulfilling points on a checklist mask more fundamental goals of sustainability in the eyes of a broader population, limiting knowledge of sustainable design to only the parameters of LEED:

> I think that LEED has sort of created like this stigma that green buildings are expensive and that people can't do it, and if you do a sustainable building and you don't get LEED certification, like your building isn't sustainable, then I think that that's hogwash. And I also think that a lot of people just buy points for LEED.

> Like I said before, they'll put things in a building not because it's benefiting the building or anything else, it's just so they can get points.

This participant believes that a building does not need to follow the LEED program to qualify as a successful sustainable building. In fact, a male principle of a conventional architecture firm even believes that LEED permits a continued celebration of a false sense of sustainability, allowing many architects to have a 'clear conscious' through addressing the topically relevant theme of environmental responsibility: "It certainly doesn't lead to any better architecture. I think it's still only leading to a kind of clear conscience." To avoid the 'greenwashing' of LEED, a male principle of a sustainable design firm advocates approaching the design process with regard for each project's unique contexts rather then regard for arbitrary components of a checklist:

> I think that the LEED checklist should sort of remain in the drawer until the building is through schematics, and then once the right decisions are made for the project, whether that be budgetary or client mission or just, again, good design considerations, then pull out the checklist and see where you land.

Participant skepticism of LEED results from evaluation of LEED projects as fundamentally inappropriate solutions to design challenges that require a case-by-case holistic analysis rather then a cookie-cutter step-by-step instruction manual. Though it is true there is nothing in LEED that stops architects from designing in an integrated, holistic way, participant's demonstrated a shared perception that LEED has the potential to contribute to greenwashing.

LEED-Raising Awareness

However, despite the criticisms, participants recognized the merit of LEED as raising awareness and setting an expectation in the architecture, design, and construction industries that environmental responsibility must be considered. A male principle of a sustainable design firm who is critical of the inappropriate use of technology in LEED, even acknowledged its benefits. He confessed: "there are things about LEED that I think are not good and that actually encourage

a building that is…environmentally wasteful. On the other hand, it's done a lot to get the issue out in front of people, and it's also provided sort of a baseline plateau that's a lot higher than when things were prior to LEED." A female participant similarly responded: "The benefits are that it's pushing the standard. I think it's needed because we need something out there that pushes the limits of what we should be doing and I think that that is what LEED has done." As the LEED standards are constantly being updated and upgraded, this participant is optimistic about the benefits it will have for the practice of sustainable design.

Though participants expressed concern about LEED, they understand that it has created popular buzz around issues of sustainability in the built environment, helping to educate many, clients and designers alike, who would have been previously unfamiliar to the issues. A male principle of a sustainable design firm believes it's "been very useful in both getting clients to understand what the benefits might be, helping the design professionals have essentially a guideline that they can use with their clients to show them the benefits that they can get." LEED has popularized and made accessible ideas about environmental stewardship that had previously been too complicated for clients to understand or hold opinions about. A female architect at a sustainable architecture firm believes it also gave incentive for additional members of the design community to become involved. She commented: "I think the positive aspects of the LEED are just the fact that it's made more people aware of sustainable design…I think that for people who, having like status is important, having that certificate from LEED, pushes people in a direction that makes them take further steps than they may have done." Despite this participant's acknowledgement that LEED cannot instill philosophical dedication to environmental rights, it's creation of a competitive spirit encourages and educates those who may not be particularly drawn to environmentally responsible practices. Similarly, a male principle at the same firm said:

"I think it's done a really good job of publicizing the issues and sort of getting a lot of people on board with sustainable design who might not otherwise have been on board. You know, everybody like a competition, right? And everybody wants to win." Thus, as a male principle and founder of a conventional architecture firm said, the overall consensus regarding LEED, among male and female participants alike, is "it's better than nothing."

7.4.5 Critical of- Greenwashing

Male and female participants alike reported being critical of 'greenwashing,' which attempts to market and celebrate inappropriate sustainable design solutions that don't address fundamental, contextual design problems. They criticized the use of visible 'bells and whistles' that are not integrated solutions, but added on as afterthoughts to promote the use of sustainable design. No further gender distinctions can be made regarding these attitudes.

7.5 Top 5 Differences in Code Occurrence by Gender

Now that popular industry-wide themes, which have been discussed by both male and female participants have been explored, a gender analysis of differences in men and women's thoughts will seek to answer the fundamental qualitative research question: How do female architect's perception of, approach to, and philosophies about sustainable design differ from male architects? Though it is already evident that men and women share many beliefs about sustainable design, understanding the top 5 differences in code occurrence by gender highlights embedded gender dualisms translated from larger cultural categorizations of women with nature and men with culture. As already discussed, these dualisms are present in the architecture profession in architectural form, aesthetics, and the architect's 'male ego', which inadvertently continue to differentiate the way men and women approach design despite conscious recognition of such effects. This research seeks to understand the translation of gender-dualistic thinking to

sustainable design, investigating the degree of differences, where the differences lie, and how they compare to previously explained gender dualistic categorizations of male and female.

To obtain the top differences in codes discussed by male and female participants, the top five largest average deltas between number of male and female average code occurrences was obtained from a list of statistically significant codes (average code occurrence greater than 0.5). Average delta was calculated according to averages of male and female code occurrence to account for the differing number of male and female participants. Of the 5 largest differences, 3 out of 5 codes were most frequently mentioned by men, and 2 were most frequently mentioned by women. As seen in Table 7.10, a positive gender delta average indicates a code heavily mentioned by females, while a negative gender delta average indicates a code heavily mentioned by males. Gender differences within broad code categories of *Formation of Sustainable Design Philosophy* and *Solutions for Change* were not included in this analysis as, the primary goal of this analysis was to determine male and female differences regarding sustainable design philosophy or strategies. The largest differences occurred within the broad code category *Sustainable Design Strategy,* indicating that men and women's answers differed more when asked how to implement specific solutions then when asked about their general philosophies regarding sustainable design. The Architectural Identity Map for top gender differences indicates participants differed mostly in the design products circle, which encompasses design strategies, form and aesthetics.

Figure 7.4 Architectural Identity Map Top 5 Differences in Codes by Gender

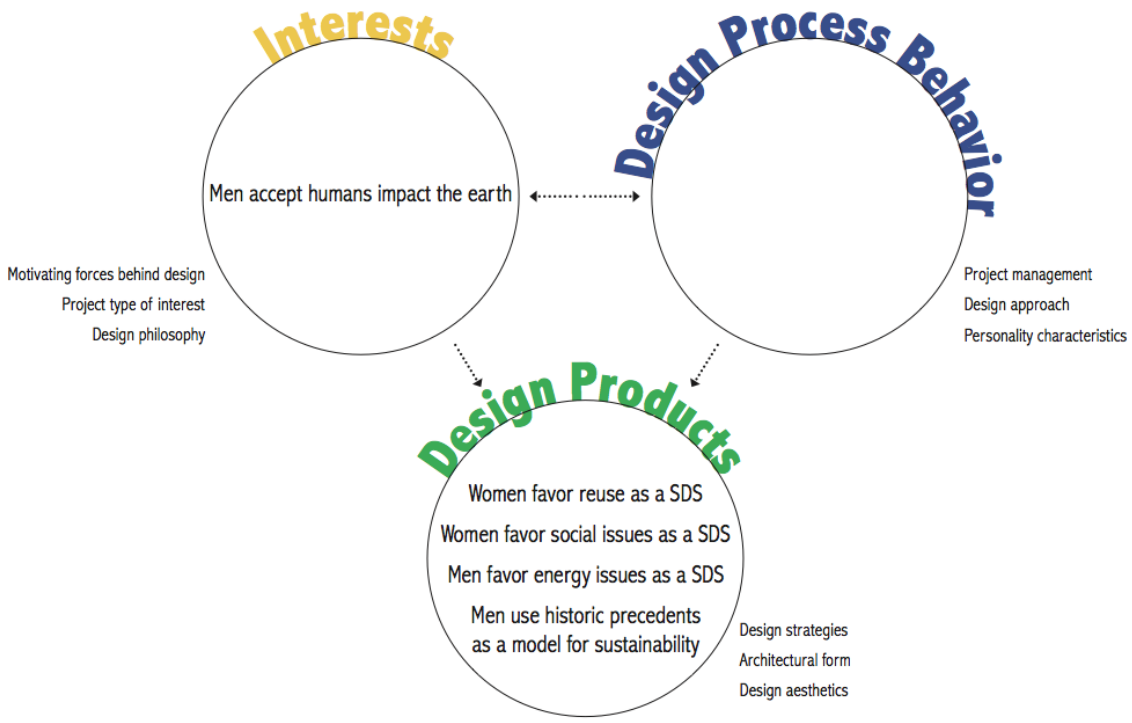


Table 7.10 Top 5 Differences in Average Code Occurrence by Gender

Code Name	Dominant Gender	Total Occurrences Average	Male Occurrences Average	Female Occurrences Average	Gender Delta Average	% Gender Delta Average
Sustainable Design Strategy-Reuse	**Women**	0.65	0.32	0.96	0.64	**98.16**
Human/Nature Relationship-Humans Impact the Earth (neutral)	**Men**	0.78	1.14	0.46	-0.68	**86.64**
Sustainable Design Strategy-Energy Usage	**Men**	1.02	1.41	0.67	-0.74	**72.66**
Sustainable Design Strategy-Historic Precedent	**Men**	0.54	0.73	0.38	-0.35	**64.82**
Sustainable Design Strategy-Social Issues	**Women**	0.87	0.64	1.08	0.45	**51.40**

7.5.1 Sustainable Design Strategy- Reuse (women)

When asked to explain their approach to sustainable design, women, much more frequently then men, mentioned the concept of reusing products to lengthen the duration of a building's or material's life in efforts to conserve. A female participant stated: "I think sustainable design is building and using materials in a way that allows for reuse when that lifecycle is over." Her understanding of a sustainable building is one that is in partnership with the world, not just in physical accordance on the site, but in matter as well. She believes the building comes from the earth and should be able to return to it or be used again for functional purposes rather then be sent to the landfill. Another unregistered female architect reported her conception of sustainability includes, "using products or reusing products that are already out there, giving things a second life and not taking things, not using so many new materials or resources." She believes that the reuse of old products will reduce the amount of energy used to create additional products.

In addition to using less new material and new energy, reuse allows architects to drastically limit the amount of waste generated from existing infrastructure. A female participant, co-principle and founder of a conventional architecture firm said reuse "makes a lot of sense with sustainability, because the less you take away, the less you, you know, less trash, garbage and so forth you make." Another female principle at a different sustainable architecture firm similarly believes that reuse must be considered as an integral option from the beginning of the design process, understanding if there is anything that can be reused or recycled before continuing with new construction. Because so much of a building's materials currently end up in landfills, she believes it is critical to limit the amount of waste through reuse:

> A building right now is about maybe 1% recyclable because it might be the carpet…Maybe some copper piping, but generally, I think 85%, 90% of landfills I

> think are really actually buildings. So you have the regular trash that goes into landfills, but it's actually tearing down the buildings that are the primary source of…all the plastics in the landfill…So when we're worried about the fork or the spoon that we're throwing away versus recycling, we've got a much bigger problem in the fact that we throw away an entire building…So there is something to be said for figuring out how to build a building in a way that at the end of it's useful life, something happens. We just never think about the end it's useful life.

These women participants demonstrate a holistic sensitivity to understanding and limiting the impacts of a building's lifecycle. Their consideration of reuse as an important aspect of sustainable design indicates their attention to environmental impacts simply beyond the building's useful life.

Conversely, very few men mentioned reuse as a sustainable design strategy that they implement or have interest in. One male architect, who did mention reuse expressed doubt regarding its possible aesthetic limitations. He also expressed sentiments of the 'male ego' as he jokingly lamented over the negative impact of reuse on the building industry's growth:

> Renovating a building, reusing what you have, is more sustainable than building a new building...And if that's truly what happens, we'll be out of a job, if there are no more new buildings. But I think what that really means is taking the resources that you have and using them wisely, and it changes what you can really do architecturally, but at the same time it could be an opportunity.

The abundance of female support of reuse as a constitutive component of sustainable design in contrast with the lack of commentary on reuse from the male group of participants indicates a strong difference in level of awareness regarding building lifecycle. Though men's qualitative opinion's about reuse did not differ strongly from females, men's significantly small number and women's abundant number of remarks about reuse alludes to gendered influenced attitudes evident in sustainable design.

7.5.2 Human/Nature Relationship- Humans Impact the Earth (neutral) (men)

The second largest difference in themes mentioned by men and women is the common sentiment shared among male participants that humans impact the earth, without passing positive or negative judgment on it. While men seem to accept human impact on the earth as the reality of the current planetary situation, women more often idealistically expressed desire to change human's degree of impact. Men practically assess the situation to understand the workings of the world and look for logical solutions. A male designer at a sustainable architecture firm accepts the dualistic relationship between non-human nature and civilization, believing domination is human's intuitive impulse towards nature:

> There's always gonna be natural disasters and things that we can't control such as floods, earthquakes, things of that nature. So, I mean, man always wants to dominate nature. We want to think that, you know…we could control it, but at the same time we don't want the negative consequences. We don't wanna feel responsible of the things that we want to produce, and I think the way that we wanna live or the life that I wanna lead leads to like a degradation of the nature environment.

This participant views humans' impact on the earth as inevitable. Without attaching critique, male participants believe humans dominate and are destructive of nature, without offering solutions or calling for change. Instead, they seek to understand the degree that humans negatively impact the environment in efforts to encourage further attention to its consequences. A male architect working at a conventional architecture firm reported:

> I think humans will naturally have an impact on natural environment…And that that's okay. And I think that at this point it's hard to find much of the earth that hasn't been impacted by humans…And I don't necessarily see that as a bad thing, but I think the important thing is that we're aware of how we're impacting the earth…So the actual active impact I don't see as bad, but I do think it's bad when these things are done without an awareness or without a kind of greater awareness of the impact that it's gonna have down the line.

Male participants assess the human/nature relationship from a more practical and realistic position. A male architectural designer believes human actions are so intertwined with the state of non-human nature that imagining a world without human consequences is not possible. However, like the participant above, he believes the only solution to recognizing the adverse effects of human impact is examining its consequences.

> Yeah, I guess I just see the way that humans like affect every aspect of it, even areas that we aren't currently inhabiting…That a lot of consequences are based on our actions. And so I guess I don't really know what it would be without us…I guess my thought about sustainability is that even though everything's constructed and we do have these impacts, we do create this impact on the rest of our environment, that that in itself is the motivation to be sustainable in that like our actions will have consequences…and that we should respond to what we predict those consequences to be. So I guess I don't see it as much as preserving or trying to go back to a natural state as much as maintaining and managing an equilibrium in the environment.

Converse to men, most female participants offer more idealistic responses, imagining a shift from the current paradigm and posing solutions for change. A female unregistered architectural designer working at a sustainable design firm negatively expressed human's impact on the earth, and is more hopeful then men, acknowledging the building profession's ability to influence change:

> I guess I think that the human race as a whole is not doing a lot of positive things to the earth. I mean, I find more negative things people are doing. I'm trying to be more optimistic about, I guess, different professions whether it's, I mean architects and landscape designers do influence the built environment, and I think that they have a large role.

Unlike men, she outwardly presented human impact as detrimental and additionally, posed a hopeful course for revision. Another female participant at a sustainable design firm said:

> I don't wanna see us negatively impact the environment by building too much…The environment shouldn't be compromised by human activity, so there's gotta be a way that [humans and the environment] are sort of living in some kind of ecology or harmony in which neither is harmful to the other and both can be appreciated.

Though she does not offer a defined solution, she expresses a desire to find an alternative and envisions a more balanced relationship between humans and the surrounding environment. A third opinion from a female participant demonstrates the extreme end of the female participant's spectrum, emphatically calling for a new paradigm. Unlike male participants, who neutrally evaluated the current state of human impact on the world, she believe humans must make adjustments to reduce the degree to which we impact the earth:

> Right now I have a very pessimistic view and very saddened by what's happening in the world the way I feel that humans take advantage of the earth. And I think that if we don't have a radical change in the way that we live as a population on this Earth then we are going to ruin it. And it's going to cause hardships to the human race that would not have to happen if we were to live otherwise. And I'm scared because I don't know if as a whole human race if are going to be able to recognize it in time.

To compare once more to the converse male perspective, a male participant calls for more mild action taken towards protecting the environment: "I don't feel that I do all that much positive for it. I don't help nature, all I'm doing is I guess trying to hurt it the least." While males analyze and aim to understand practicalities of the present, women imagine more radical alternative realities.

7.5.3 Sustainable Design Strategy- Energy Usage (men)

Though male participants did not express much interest in reuse as a sustainable design strategy, they frequently mentioned regulation of energy use as a strategy for sustainable design. However, more important then male's interest in energy issues is the noticeable difference between male and female participants attention to this strategy. Males spoke broadly about energy issues, discussing passive techniques, technology intensive techniques, and a variety of combinations in between, though they did not favor one particular solution. It is most important to note male's overall attention to building's energy consumption as primary concern when

considering sustainable design. For example, a male principle and founder of a conventional design firm believes sustainability to be gauged in energy performance:

> The way I've been able to sort of feel comfortable with that kind of discourse is thinking about sustainable in terms of performance…We're able to show somebody by using solar power, what kinds of returns on investment they can get, what kinds of energy savings that they're getting…Using engineers that are very conversant with lower energy techniques, of heating and cooling spaces, those kinds of things, have become much more important to us.

In this context, sustainability is interpreted in a very measurable, quantifiable way. Another male principal and founder of a sustainable design firm agrees, "the big thing is energy". He states: "I think so much of the currency of society and ecology and everything is all about energy. The way it moves, it moves around through the systems. So, to make a structure that is energy-efficient, and also has the potential to produce energy, is a really big deal." This participant's partner and firm co-founder, also a male architect interested in renewable energies, stated:

> We got interested in the issue of the environmental performance of buildings in a very pragmatic way as a result of developing and trying to optimize, really, PV [Photo Voltaic]…our roots in this sustainable architecture world are in a pragmatic basis, not in a more holistic basis or in a marketing basis, which is probably what many others who do this kind of thing come at it from.

The male investigation of technologies related to energy has resulted in a performance-driven interpretation of sustainable design. Another male architectural designer also championed energy technologies as the most fundamentally important strategy for sustainable design:

> Sustainable design is using the technology that we have at our disposal to limit the amount of resources that are being used up. I feel like the material selection is the easy part, and we should all be doing that all the time…I think the challenge is trying to make buildings use as little energy as possible...I'm most interested in the technologies that use the existing energy in the environment actually. Like photovoltaics are using the sun's energy and wind turbines are using the kinetic energy in the air that they translate to electricity, even piezoelectric that you can press on them to generate tiny bits of energy. Trying to find these unconventional sources of energy that are out there were just not using them. The pavement outside of this room could be picking up every bit of each persons footsteps and generate energy for building. I'm interested in technologies like that.

Similar to that perspective, male participants discussed passive techniques used to limit a building's energy use. A male architectural designer at a conventional architecture firm recommended, "just off the bat, taking advantage of whatever local conditions there are in terms of solar orientation, shading…That's usually the first and biggest, and then anywhere that's possible going in and working with consultants to [pick] equipment that consumes less energy." This participant still references the importance of energy use and building performance, but approaches the design challenge, first passively, given the project's site conditions and contexts.

Female participants occasionally recognized energy issues as important to sustainable design as well, but less often discussed the use of technologies to generate, model, or measure energy. A female architect stated:

> I think the most important for us is to build a good-quality building for starters. So the building envelope…if that's a good quality, then you immediately reduce your energy impact, which is probably sort of the biggest factor, I guess, in sustainability, is how much energy we use. So, it reduces the energy in the useful life of the building. It reduces the embodied energy because you won't have to rebuild that building in 20 years if you can make a building that will last a hundred years. So I think that's the first place we start, is trying to be smart about just how the building is put together and how it's oriented.

As reflected in this participant's response, female architect's attention to energy issues tended to more fundamentally address the energy implications through basic architectural decisions, such as responding to environmental contexts, ensuring a sound building envelope, and building for longevity. Another female architect placed similar emphasis on the simple strategy of the building envelope: "I enjoy the nitty-gritty of the building envelope and how it breathes and moves, looking at energy efficiency that way. The big thing now is to prevent thermal bridging from the inside of your building outside because that's just heat loss that you can't account for."

Though energy issues are a universally important component of sustainable design, males tended to mention them far more frequently then women. And as demonstrated, when mentioned by women, issues of energy efficiency were qualitatively different in focus. This finding highlights a connection between a very practical, measurable definition of sustainable design and the male gender, alluding to theoretical gender dualisms embedded in cultural institutions.

7.5.4 Sustainable Design Strategy- Historic Precedent (men)

Men, far more frequently then women, also discussed the value of examining historical precedents in architecture as models for sustainable design. These men discussed the possibilities to learn from historical techniques, which often required less technology and worked more harmoniously with the existing conditions. A male architect and principle of a conventional architecture firm stated, "Things like Trombe walls or things that simply use inherent qualities in materials are great. The ability of a mass of concrete to hold heat, the ability of dark surfaces to absorb heat and light surfaces to reflect heat, just some of the fundamental natures. In a way, it goes back to this understanding materials and what some of their fundamental capabilities and abilities are." Before humans were able to manipulate materials to suit our specific needs, we had to rely on what worked in more fundamental ways, without reliance on technology. Another male principle at a female founded sustainable design firm stated, "Well, if you don't' have a technology involved, there's typically less money, there's less construction cost. There is nothing to maintain. There's nothing that needs an energy source. It's sort of getting back to the basics of design, the way we designed before we had technologies to heat/cool buildings." A male principle and founder of a sustainable architecture firm said,

> The fact that for hundreds of years people were able to live quite comfortably in fairly bitter climates on a couple of cords of wood, which is just a small fraction of the petroleum that we have, or that people lived in rather hot, humid climates

> without air conditioning up until really less than a hundred years ago…very much shaped architecture. It created a regional architecture where a house in Louisiana would be very different than a house in Northern Vermont…and also created a very different sense of place where the sense of place was very much a part of this integration between the built environment and natural environment, in large part out of necessity. But if you read any of the historical architectural writers from Vitruvius through people who were writing in the late 19th century, Robert Geddes, I think, a Scottish planner and social thinker, and up through the modern writers of the first half of the 20th century…The notion of building as interacting with nature, the built environment and the natural environment interacting, was absolutely part of everything that has been said**,** and it is only at the point that people began to say, 'Well, we don't have to worry about that anymore…' that this fell away, and I think not only did it have serious environmental consequences, I mean very bad environmental consequences, but I think it actually hurt the built environment.

This participant discussed the value of historical, conditionally driven architecture that responds uniquely to environmental forces acting upon a site. He laments that modern day architecture does not respond appropriately to weather, as a building's interior is now sealed from the external conditions, separating the 'built environment' from the 'natural environment'.

Historical precedent was discussed as a primary source of inspiration for these male's understanding of sustainability. This sentiment was shared primarily among male participants, but in one case was also addressed by a female principle of a conventional architecture firm as well. In reference to indigenous architecture she stated: "People have been thinking about sustainable architecture for eons...How do you keep the sun out of my tent? So I think that it's possible there's an over reliance on technology when we think about sustainable design…I plan to think more about how to use conventions smarter." This female participant demonstrates that women have the same qualitative opinion about technology and the benefit of more simple historical architectural conventions. However, men directly reported this more frequently then women, indicating their connection with the dominant paradigm of architectural history, theory,

and education. This finding could also indicate male's use of the authority of history for the defense of the current dominant paradigm.

7.5.5 Sustainable Design Strategy- Social Issues (women)

When questioned about particular strategies and approaches to sustainable design, women, more often then men, mentioned the inclusion of social issues in their definition of sustainability. A female architect and principle of a conventional architecture firm reported:

> I think social issues are definitely a part of sustainability…I think it comes down to fundamentally thinking about what's the right thing to do. What's the right thing to do in terms of the natural environment? What's the right thing to do in terms of the environment more broadly, taking the cultural, social, all those contexts? Because we can't separate them out.

This female participant recognizes a connection between humans and the natural environment, seeing them as one and the same that both deserve consideration when designing. One female participant defined sustainability as, "Respect." She said: "I think respect for the environment they are putting it into and the people you're going to use it. Because it just can't be a building that is doing no harm to the earth if it's harming the people that are working there everyday or are living there." Again, attention to the environment includes attention to all living creatures that are part of that environment. Female participants conveyed that human health, happiness, and culture must all be prioritized, as sustainability in their eyes goes beyond pure attention to environmental conditions. In essence, these women remind us that sustainability has a human component in addition to quantitative performance benchmarks. It is about people, connections, and cultural contexts. A female architectural designer reported: "Sustainable design is not just…designing as an architect but…having a sense that you're actually designing for somebody."

A significant case study of a female architect interested in social issues is a women who co-principles a sustainable design firm. She discusses her continued involvement after the completion of a creative and performing arts high school, extending her role of architect to educator and mentor. She said:

> And I think that's what's really great. It's taking young minds and showing them the right way to do things. I continue to go there and work on programs with them. We built them an organic vegetable garden on Earth Day…We did some mural projects there as well…. I want the school to be a legacy, too, and I want kids to feel that it is their school. You know, somebody was saying, 'Wow. You're letting kids like put a mural over the front door? Gosh, don't you think that's gonna ruin your design?' And I said, 'Well, it's their school, and if doing that mural makes them feel like the building belongs more to them, then I'm all for it.'

This female participant sees the value of empowering users through design education to promote community growth that can be sustained over time. In this situation, the architect is not just imposing her design solutions over uninvolved users, but actually allowing them to participate and feel connected. She continued to describe how inclusion of social issues as part of sustainability, means extending consideration for people beyond that of the building's user, to that of the greater community. She described the site for the creative and performing arts school as "a colossal eyesore." She said:

> It was totally abandoned, covered with junk, millions of tires. People used to like drive their cars and just junk 'em there. There were stray dogs living there. There was a lot of drug dealing that went on...And one of the reasons why I think it was so neglected was because it was right between 2 neighborhoods. It was sort of the war zone. And what we wanted to do with the building was break down the wall and make the building sort of be the connection between one neighborhood, which was essentially white and wealthy, and the other neighborhood being Latino and struggling...It used to be an industrial neighborhood, a big industrial neighborhood in Philadelphia, and that industry has left. So, here was this piece of land that was completely neglected, and we really wanted to make it a positive sort of link between the 2 neighborhoods. So it's a super-transparent building, and you can actually walk by the front door and you can see all the way through into the students' garden and back to the mural that we painted on the wall, because I thought that was important for people to see all that positive

> activity...And what has happened is that now that the school is there, there is a rec center on the other side that was neglected, and it's gotten totally fixed up. It's got a new playing field. It's got stormwater management. It's got a mural project of its own, and the Community Development Corporation in the area is now calling this the big green block, and they're really seeing this as the start of really reviving that whole area.

This participant emphasizes the power of a sustainable project to not only create a healthier natural environment, but to completely revitalize the entire building's surroundings, creating new social structures and healthy activities. She professes how one building can have a broader purpose and do good.

In the opinion of one female architect, principle and founder of a sustainable architecture firm, sustainability also includes consideration for economic contexts as well. She reported:

> And in LEED criteria, you can now today design a Platinum-rated building that costs 200 million dollars, which could be a building that you can actually build, if you thought about the cost, for under 2 million. But you can get a Platinum rating. So I think there is some disproportionate situation there, and that people don't seem to understand the value of money and cost. And where that cost is really coming from. Because I think for every billionaire, there is a million people starving...People don't seem to think that budget matters.

She emphasizes the importance of cost, as all architecture has economic implications, which directly affects the livelihood of people. The extensive cost of LEED certification, in her opinion, is socially unsustainable because it displaces money that could be contributed to struggling communities. Instead of a 2 million dollar building, an extra 198 million is used toward 'greenwashing' in the form of marketing, technologies, and other superfluous details. Thus, 'sustainable' architecture that does not consider economic consequences on the broader community is not truly sustainable, as it primarily benefits (through profit) a privileged group of people already wealthy and in power.

It is important to note that though the inclusion of social issues in sustainability was primarily discussed by female participants, some males also shared the position. A male architect at a conventional architecture firm stated:

> I also feel that for building to be truly sustainable, it has to be responsive to social and cultural context just as importantly, because it's gonna get torn down if it doesn't, and that's more wasteful than not getting built at all...I don't see architects as purely problem solvers. Like that's not as interesting to me. Like I would rather see them as part of a great cultural idea.

Similar to the female participant who worked on the creative and performing arts high school, this participant agrees that architects have a greater responsibility to the community. He sees consideration for social and cultural contexts as a tool to increase appreciation, and thus, longevity of a building. Another male architect, principle of a sustainable architecture firm, similarly states his dedication to contextual consideration beyond the pure physical and environmental:

> From the onset of any specific project, we'll spend a lot of time taking a moment to listen to not only what the program is but what the spirit of that site is, or if we have a choice in sites, what each of those natural environments offer. So looking not only at things like orientation and exposures and topography and things like that, but going beyond that to other broader social or cultural issues that might play a very important part in the design decisions that are being made.

Attention to all physical and metaphysical properties of a project's contexts allows for a deep understanding of a building's intended impacts, and allows the architect to apply the most appropriate design solutions. Female participant's tendencies to value the inclusion of social issues in sustainability, reflects gender dualistic characterizations, and will be further analyzed in the discussion section.

Examining the top differences in code occurrence by gender indicates areas where male and female participant approaches to sustainable design differ. As previously mentioned, the greatest divergence between the two genders occurred when questioned about specific

sustainable design strategies, rather then larger sustainable design philosophies upon which they were in agreement. The most significant differences, which will be further analyzed in 'Discussion' with respect to theoretical context, were males attention to more pragmatic, practical issues and women's attention to human-based issues and long-term thinking. Men's practicalities were evident in a desire to measure human's current impact on the earth and their interest in energy performance. Women's sensitivities were evident in their consideration for a building's lifecycle (reuse) and inclusion of social issues in their idea of sustainability. These results indicate the existence of embedded gender-dualistic thinking in the architectural profession, despite participant's reported beliefs that gender has no impact on design process or product.

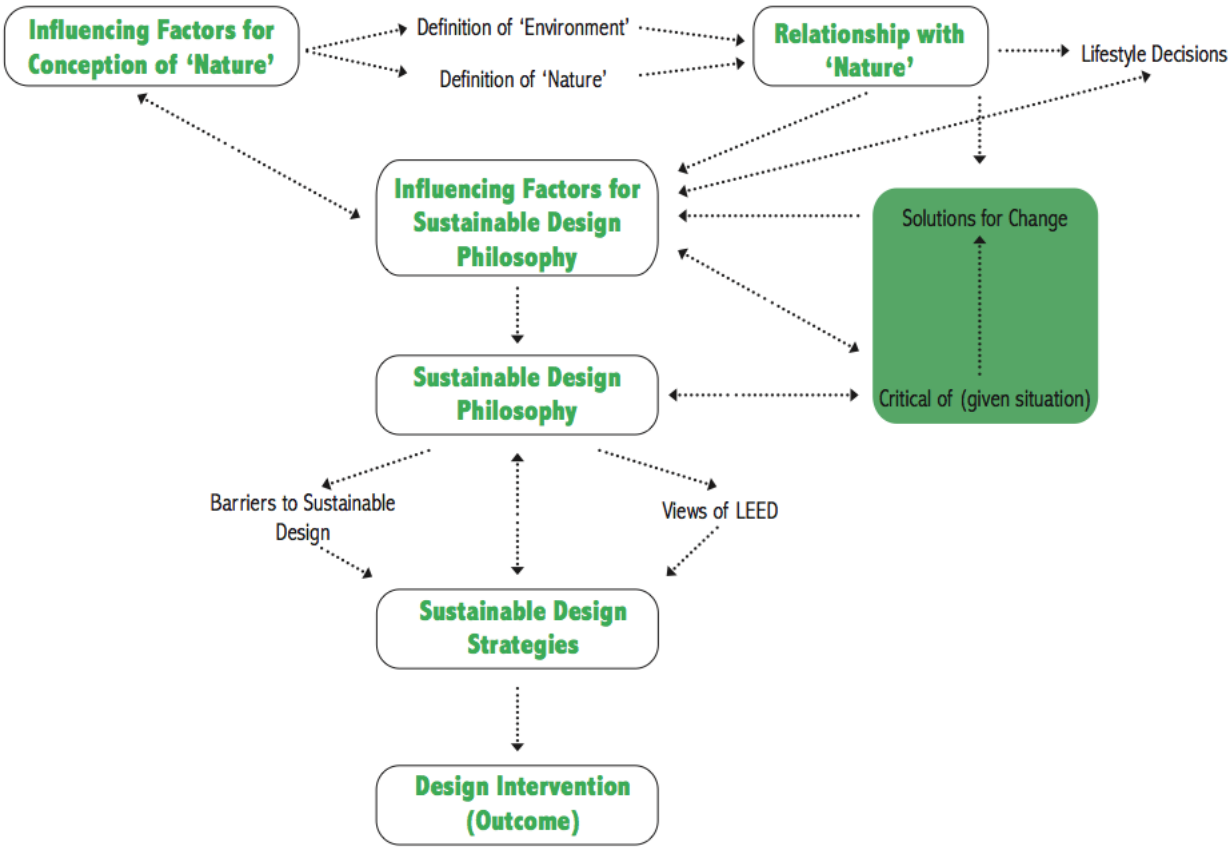
7.6 Formations of Beliefs, Solutions for Change

Now that top gender differences in participant's thoughts regarding sustainability have been introduced, it is important to seek to answers to the secondary qualitative research question: What influences the conception of an individual's sustainable design philosophy and environmental attitudes? Understanding alternative reasons for participant's beliefs will indicate areas where non-dualistic approaches to sustainable design can be embedded to promote a new, less destructive architectural paradigm. Participant responses on influential forces for their conception of nature will be presented first, followed by formative forces for participants' sustainable design philosophies. These experiences are interrelated, as an individual's early ideas about nature inevitably influence her ideas about sustainable design and give purpose to its mission. Overall, female participants more frequently discussed formative forces for their conceptions of nature, while male participants jumped right to formative forces for their

sustainable design philosophies. However, no conclusions can be drawn about gender due to the small number of responses for each code. Lastly, participants' reported ideas about solutions for change toward a more sustainable architectural practice will be presented.

It is crucial to understand the intimate relationship between the broad code categories (they rely upon each other to formulate a larger picture of an individual's beliefs). The sustainable design outcome framework, Figure 7.8, aims to explain how each of these code categories influences another and how change in one part of the framework can lead to a gradual shift in beliefs seen in other parts of the framework. Each of the boxes represents a code while the arrows indicate a causal relationship following its direction. The primary purpose of the framework is to visualize where change can occur (dotted box) and envision how the iterative cycle of belief formation and acquisition will evolve as societies place greater value on sustainable design and continue to challenge the current paradigm.

Figure 7.5 Sustainable Design Outcome Framework



7.6.1 Formation of Conception of Nature

Table 7.11 Formation of Conception of Nature Code Occurrences

Code Name	Total Occurrences Average	Male Occurrences Average	Female Occurrences Average	Gender Delta Average	% Gender Delta Average
Formation Conception of Nature-Physical Location	**0.80**	0.32	1.25	0.93	**115.85**
Formation Conception of Nature-Childhood Experience	**0.74**	0.68	0.79	0.11	14.86

Physical Location

A largely influential force for conception of nature, mentioned primarily by women, was immediate physical location. Cities, suburbs, and countries that these women lived in had an immediate impact on their relationship with non-human nature. One female participant generally reported: "We live in New York City and sometimes you really kind of forget what nature pulls into you. But I imagine that if you're living in it that you have a little bit more of a connection to it to care for it. It's just more present…it's somehow more upfront in your head." This participant expresses the idea that living in an environment that has been less manipulated by humans inspires them to be better stewards and creates a general awareness of its importance. To exemplify, a female architect discussed her connection to weather conditions: "You know how it changes. You know how it shifts. You know when a storm is coming. You don't know those things in New York until it hits you. And then, I think in my adult life when I moved to an area that had a lot of mountains, that's when I felt like I could really appreciate [nature]...You know, it's one thing to run around the woods. It's another thing to actually see mountains and to see the whole ecosystem there." She felt that living closer to non-human nature heightened her awareness to variations in environmental conditions and provided her perspective on how each component fit into a larger biological context. When asked how she formulated her views of non-human nature, another female architectural designer responded; "It's really strong especially coming from where I grew up." She continued, "I was born and raised in Brasilia, which is a pretty urban city but not nearly as, well, it's just different. It's very green. There are a lot of trees everywhere, so I always grew up having that sense of nature and animals…I had chickens, and guinea pigs and things like that, so it's certainly a big deal for me, and just learning to respect it as well. Like my granddad had a farm, so we would always help him plant and pick

the fruit when it was ripe and things like that, so certainly a big part of my life, I would say."

Another female participant, who grew up on a small island also described her experience and how it influenced her beliefs:

> People are really proud of living in nature, not having big buildings and just sort of everything's so beautiful there, so everyone's just really trying to hold on to that beauty and understand just how important it is…having a good relationship with the environment around us…Ever since I was little, people know names of flowers and birds, and they recognize like trees from their leaves and stuff like that. So that's part of how I grew up and sort of stuck with me.

Both of these participant's experiences immersed in a particular physical location directly influenced their relationships with nature, which remained with them even after they moved to different locations.

A individual's physical location can also influence her conception of nature as it serves as a cultural behavioral model that redefines ideas of human relationship with non-human nature. On her experience living in rural Japan, a female architectural designer stated:

> Then you move to a place where you have nothing but the natural landscape…and you have a nonflushing toilet and have no insulation in your house. It really makes you re-evaluate what is important to you, like, 'Oh, I need food. I need shelter. I need human interaction.' And I've always loved plants and greenery, but this experience really made it important to me...because I wanted to grow my own vegetables and…be a self-sustaining person, because that's the kind of environment I lived in where people fished every day and they didn't take more then what they needed.

She followed the example of native people and aimed to understand their relationship with nature. Another female architect and principle of a sustainable architecture firm stated:

> I probably took away more from my Peace Corps experience [in Africa] than I gave, although I don't know. I hope it was sort of an even exchange, because it was fascinating. The people were really smart about living in a very extreme climate…They didn't run around when it was 110 degrees, and really hot and sweaty. They really knew how to relax during those times. They knew how to keep their houses cool. They knew when to let the sun in, which was in the winter, and when to keep it out, which was in the summer. Those were things that now everybody talks about with sustainable design.

Her experience learning from customs of another culture influenced her idea of how to live in response to the changing natural conditions. The climate, and thus, physical location, had a huge impact on behavioral patterns, which taught this participant about alternative modes of living.

Childhood Experiences

Similar to physical location, participants reported childhood experiences as influential to the development of their conception of nature. These experiences include outdoor activities, as well as everyday behaviors learned from homelife. A male architectural designer reported, "Throughout my childhood…I traveled quite a bit with my family in the summers, And we'd go on family camping trips, and we used to go backpacking quite a bit. So we'd go out hiking for 10, 12 days at a time. I mean, I grew up in Kansas City, so Colorado's pretty close. And there's this kind of idea of respect there." Similarly, a female participant reported, "I've been a nature lover my whole life… I did a lot of camping and hiking when I was younger and got into horses when I was very young, did a lot of trail riding. It just really took it in it really came into my heart and just made me really interested in thinking about all that." According to participants, time spent in physical nature from a young age develops an empathetic connection to non-human nature, through understanding and appreciating its beauty.

A male architectural designer stated:

> I went to summer camp in the Catoctin Mountains in Maryland and it was a very granola type camp. There were three and four-day trips outside of the actual summer camp land where we were hiking and sometimes living off of what we found. We spent the entire time outdoors—we did not use tents. I think that was the most connected I ever felt with nature, but there was never anything that you could do to really get back to nature. All you could do was bring your trash with you when you left, leave it as pristine as possible. So the ideal is leave the least impact…I guess that is how I wanted to be and want to lead my life as much as possible.

Through childhood experiences camping, he carried an understanding about the natural environment with him into his adult life. The lesson to leave as little traces as possible resulted from the immediate connection gained through immersion in nature from a young age.

Participants reported lifestyle choices that reflect sensitivities toward non-human nature were developed through childhood experiences at home. One female architect and principle reported,

> I grew up fairly poor. I mean, poor is not the right word. I grew up very working class. I mean, I grew up without a lot of stuff, a lot of stuff my kids have, [laughs] without a lot of financial freedom. So, I think that living within modest means sort of comes naturally to me…Someone once said, I remember reading somewhere that choosing paper or plastic at the grocery store doesn't mean anything if you load them into your Hummer and drive them to your 6,000-square-foot house. So, I think that making the big decisions based on sort of a modest footprint, I think comes naturally.

This participant's report indicates patterns in behavior toward the natural environment are also instilled from a young age due to habit and parental guidance. Though in this case, her parents lived a modest life for economic purposes, she adopted these behaviors and recognized the positive affect they have on the environment as well. Similarly, a male architect reported:

> We lived in old houses and rather than cranking the heat up, wool was cheaper than oil, [laughs] put a sweater on, get your long johns out… I grew up in a family that didn't have much money at all. My dad was a professor, and so our Christmas gifts would be find something secondhand to buy, and so we would essentially be recycling, buy things from thrift stores, and I think I lived in thrift store clothes through my college years. [Laughs] So I think this kind of goes back to lifestyle. I don't begrudge people who like to buy fancy things and have fancy cars and all that, but in the end that's not so significant to me. I'd much rather have a car that's efficient, that I can drive 200,000 miles, and I buy it secondhand to begin with, so I think it's where we place our priorities, each of us has to create the right balance.

This participant's childhood homelife dynamic taught him how to live modestly, recycle, and modify behavior rather then using unnecessary resources. As he grew up, he carried the lessons taught to him by example with him, making similar choices as an adult. These simply learned

attitudes translate to a perspective that considers the impact of decisions on the natural environment and aims to use less of its new resources.

7.6.2 Formation of Sustainable Design Philosophy

Participants were further questioned to understand influential forces that shaped their sustainable design philosophies. Responses indicated education, professional experience, individual research, and physical location were 4 key factors.

Table 7.12 Formation of Sustainable Design Philosophy Code Occurrences

Code Name	Total Occurrences Average	Male Occurrences Average	Female Occurrences Average	Gender Delta Average	% Gender Delta Average
Formation Sustainable Design Philosophy-Education	**1.20**	1.55	0.88	-0.67	**56.07**
Formation Sustainable Design Philosophy-Professional Experience	**0.80**	0.77	0.83	0.06	7.53
Formation Sustainable Design Philosophy-Individual Research	**0.70**	0.86	0.54	-0.32	**46.28**
Formation Sustainable Design Philosophy-Physical Location	**0.57**	0.18	0.92	0.73	**130.01**

Education

Education was primarily mentioned as a source for relevant information about sustainable design by male participants. Though many participants noted the effectiveness of formal education to introduce concepts of sustainable design, the degree of program intensity varied based upon participant's school, location of school, program, and years of attendance. Some programs fully integrated exploration of sustainable design strategies into required studio projects, while others simply offered optional electives on sustainable design. Participants mentioned learning about sustainable design through education in 3 ways: through required classes, through mentors, and through self regulated opportunities (studio, individual projects, etc.).

Participants learned about sustainable design through specific required courses at their respective Universities. One female participant reported, "There is one that is called Environmental Systems, so it's looking at mechanical systems and sort of HVAC and all that. It pretty much teaches you how to use less energy through engineering and technology." Another stated: "We took a course called Environmental Controls…there was kind of a LEED hype, I guess, and still is...I took a studio actually in undergrad that also acted as a LEED study prep." Another stated:

> We designed passive solar houses, and we put that into building structures. And we did these kinds of shading studies for facades and tracking literally how the sun would track across that façade over different days and different times of the season in different times of the year, and photographing those and calculating like percentages of heat gained that'll be coming through the buildings and things of that sort. So it was a technical thing.

As mentioned by the last participant, these required courses focused on honing student's technical skills associated with sustainable design, rather then addressing larger themes of sustainable design philosophies.

Though required courses provided a basic introduction to sustainable design, participants never expressed excitement or passion about the subjects covered. It is most likely that mentors and individual pursuit of optional opportunities were the most prominent in developing an already present interest in sustainable design, influenced by pre-existing ideas about the natural environment. A male architectural designer articulated this sentiment: "[School] gave a voice to the feelings that I had about the environment, and it opened up some new avenues to look at it in a different way." A female architect mentioned her professor at University of Pennsylvania as an influential figure in shaping her opinions about and approach to sustainable design: "Don Prowler was a really good teacher, really passionate. But in the 70's and 80's it was like passive solar, and it was very practical, and I sort of really liked that aspect of it. It was a very practical thinking about nature and how to harness it." Another male architect was also very influenced by a mentor during his education: "Carl's expertise on energy and architecture has very much affected my way of thinking on these things, in particular his study of embodied energy and discussions on life cycle costs, and his analysis of the embodied energy in existing building stock." These participants demonstrate the ability of a single individual to shape interested student's thinking about the relationship between nature and the built environment.

Formal education also provides students with opportunities to further investigate themes of individual interest relevant to sustainable design. A female architectural designer discussed the liberties her architecture program gave students in allowing them to select studio with varying focuses: "In graduate school, the last 3 studios, you chose which one you want and we entered a lottery for it. And some of them were more sustainably focused, and those were obviously the ones that I was crossing my fingers for." Similarly, a male architect discussed his

graduate studies at Penn State, which included individual pursuit of topics related to sustainability in the built environment:

> I think studying at Penn State had something to do with it, and there were some really good courses in a branch of the Philosophy Department called Science Technology and Society...It was about sort of the negative impacts of progress and technology, and this idea that…more technology will solve the problems that our current technology has created for us...And sort of critiquing that, that if we have environmental issues, well, we'll just figure out how to fix them using more and more technology and more and more energy in theory.

For this participant, school provided the resources and access to people also interested in similar topics, which allowed his curiosity to flourish and develop.

Although many participants mentioned architecture school as a source for information about sustainable design, many participants also overtly stated the opposite. The large variation in architecture schools' responses to NAAB standards for sustainable design education allows for a wide range of sustainable design knowledge possessed by architecture school graduates. Participant's understanding of and philosophies about sustainable design differ greatly depending on their individual backgrounds and compilation of experiences. For example, a male participant reported:

> In the tail end of the '70s, certainly an environmental approach to architecture was becoming more and more unfashionable down here, but was still very strong in Canada. And so, my first passive house design was actually for school, like 1976 or something. So, to some extent, my undergraduate education had some of it. At Columbia, it was all about ego. It was all about educating the future generation of great architects who would come up with brilliant, genius designs solo.

Though more schools today integrate awareness about sustainable design into the curriculum, as evident through this participant's response, the overall mindset can vary greatly. A male architectural designer discussed the lack of emphasis placed on sustainability in school as a mandatory design consideration. He said, "We touched on it. I'd say it was encouraged to some

degree in our studios, but…they wouldn't force sustainability issues down your throat." In one case, a participant reported being specifically told to ignore issues of sustainability:

> We had a lot of visiting distinguished professors, and for design studio, we got someone who was completely out there. It's like for one semester, he was like 'Put all concerns about sustainability to the side.' He wouldn't say that, but that's basically what we had to do at that point...He was like a core protege, and it was just not a concern for him. He was just concerned with form and with the beauty and the simplicity of design, but that doesn't have any sort of relationship to nature in terms of how he described it.

Architecture schools have the perception that consideration for sustainability limits a projects overall design concept. Another male architectural designer conveyed having a similar experience in school as well: "emphasis at school was about developing the concept that would guide you to all the other design decisions. So sometimes that would lead to a position about sustainability for that project or not. But most of the time not." This attitude celebrates abstract concepts generated from the 'genius' mind of the architecture student, a mentality that is deeply embedded in many design schools. The presence of this paradigm was reinforced once again by another male architect:

> Sustainability was something that we barely talked about in my education. I was in school from 1998 to 2003. It came up a little bit it wasn't really part of the curriculum…There may have been a little resistance because the pedagogy of the school was 'we're a design school, so we're focusing on what design actually means.'

Sustainability was still seen as a secondary consideration, not integral to what 'design actually means.' Thus, despite previous participant's reports of sustainable education, many schools did not prioritize sustainability, relegating it to the realm of technical and practical issues rather then integrating it into student's personal positions about design. Thus, education is not the primary force for development of sustainable design philosophy, though it has the potential to be. It is not yet evolved or in depth enough, as evident through participant's mixed responses.

Professional Experience

Participant's discussed the influence of professional experiences on their conceptions of sustainable design, often referencing a particular individual's ability to shift the way they thought about the natural and built environment. Mentors were often the principle or founder of a firm, who practiced by a strong philosophical commitment to sustainable design. In one case, a male architect reported: "The guy I worked for down there, Frank Harmon, his work is kind of focused on a more modern interpretation of the vernacular architecture." After working with Frank, this participant believed, "the vernacular, again, is something that should be understood and studied." When asked how she formulated her approach to sustainable design, another female architect, currently principle of a firm that was founded by a women with a strong commitment to sustainability, said:

> When I started working here, and Susan when she was head of the firm and head of the AIA, she took on sustainable design as her sort of hallmark, the hallmark of her presidency of the AIA. And the firm sort of really started to get into that…that's when I became more aware of that as an issue in terms of architecture and design, everything. When I was in school, it really wasn't a big thing.

Her boss's ability to spread her mission of sustainability to her employees as well as the larger AIA community, was instrumental in developing this participant's beliefs about sustainable design.

Participants also mentioned that professional experience can be an educational tool used to developed knowledge about sustainable design strategies. A male architect reported:

> I've learned through my formal education, but the development of materials and the technology associated with those materials or the technology associated with different mechanical improvements and systems, those things I've learned in my professional career...So I would say that the majority of my education in sustainable design happened after school...here and just in the architecture community.

Though school introduced concepts, this participant felt that professional experience provided a deeper understanding through the actual application of those concepts. A female architect said:

> If I was just learning, I would just read some of the things again and say, 'Oh, that's great. I would use this on everything or this is gonna catch on.' But seeing them in use, testing out the product, is pretty important, and hearing from experts. A lot of what we do as architects, we're not the ones that know everything about exactly what we're doing.

Here she discusses how sustainable design knowledge must be applied to be truly understood. She also notes the benefit of collaboratively working with experts who can educate the architect. Professional experience was not often the first time that participants were exposed to concepts of sustainable design, but is where interest was nourished, and knowledge was tested and expanded upon.

Individual Research

Participants who sought to learn more about sustainable design from previous exposure in the workplace or school, reported conducting individual research to continue the development of their personal sustainable design philosophies. A male architect did this through individual research during graduate school:

> I wasn't really trying to identify it as an issue, but I was trying to read sort of writings in ecology and trying to understand how they relate to sort of design and what we might do with buildings. I was trying to connect writings in architecture with some of those other things that were sort of more philosophical or more related to critiques of technology, and trying to kind of make sense of where that might come together.

He did not have a developed idea of his beliefs, though knew he was interested in learning more about a certain train of thought. He took it upon himself to conduct self-motivated research, which has provided a foundation for his current beliefs about sustainable design. A male architectural designer discussed how introduction of concepts through the media inspired individual investigation of its application to design. He said:

> It's been sort of popular culture long enough at this point. People are always talking about global warming and at some point I just started to think about what I was doing, at work. Not just recycling at home. And then I gradually started to pick up green things here and there, architecture related trends in the area…I just found it interesting and have been pursuing it on my own.

Another male architectural designer discussed the internet as a tool for self investigation:

> On a more practical, fundamental level or operational level, it's that earlier passion that guided me to learn, and through the learning, I would have to say that probably the single biggest factor is the availability of information on the Internet, where I'm just constantly learning, and then from that knowledge, pursuing.

Individual research requires an underlying interest in sustainability, possibly generated through previous exposure in school, the workplace, or from a more personal relationship with non-human nature. It provides deep meaning to each individual, as s/he can navigate the available information and pursue topics of sustainable design most related to personal interests. A female participant discussed the investigation of embodied energy into her everyday routine, as a tool for understanding issues of sustainable design:

> [I understood there was] all this embodied energy within the building. But I took it a step further and started looking at, does it really save energy to bike as opposed to public transportation as opposed to walking as opposed to driving and looking at the embodied energy of all of those things. The problem with Odum's diagram was it's never a good place to stop, because then you're like fuel versus how many burritos did I eat to have the energy to ride my bicycle, and stuff like that.

The desire for expanding knowledge about sustainable design can be pursued in many ways, and integrated into personal life as well as professional life. There is no clear boundary- a sustainable design philosophy pervades both spheres so that individual research should be contributing to both a more refined sense of self as well as sense of mission in the workplace.

Physical Location

Physical location was primarily mentioned by female participants as a formative force for sustainable design philosophy, while it was hardly mentioned by males at all. Physical location

encompasses cultural design practices associated with a certain place and the influences of the environmental conditions of that place. A female architectural designer said: “I really think that the whole, like everybody’s interpretation of sustainability and their ideas about it all come from the environment you’re placed in...And I don’t necessarily think that gender has such a big thing to do with it.” She continued to describe an influential living experience: “I lived in Borneo for 4 years, in Brunei…I was just like in the middle of the rainforest, and…the way people approach the idea of, like, housing, and just like building with… They’re sort of always building with the rainforest and always the intervention with it was always so much more minimal.”

Another female architect discussed her experience of living in the Netherlands and absorbing their sustainable design philosophy. She reported:

> I was just thinking about the Dutch culture. I mean, they are really restricting their land. So they really, really make sure everything is working perfectly with nature, with people. Urban planning over there is amazing, and the reason for that, again, is because they don't have land to mess up things. And then also in Japan, we don't have that many resources as well. Electricity, water, everything is really, really precious. So, like, a small example is dual-flush toilet.

The physical location creates cultural patterns that reflect a place-specific relationship with nature, and thus, a position about sustainable design. In the case of the first participant, minimal intervention with the natural environment was a guiding principle for sustainable design that taught her how to integrate the built into the natural in a harmonious way. In the case of the second participant, land and other resource limitations result in an approach to sustainable design that emphasizes conservation and efficiency. Another female architectural designer discussed the influence of her home country, Brazil on the way she approaches sustainable design:

> Going back to where I live, unless it's a massive office building, sure it'll have central air conditioning, but the household wouldn't. It's very rare, especially my city because it was a very dry heat, so in the shade we would be perfectly comfortable, so we wouldn't need the air conditioning. It's just common knowledge you would open your windows to let the breeze cross, and the cross

> ventilation was something that you wouldn't need to go to school to know that you need to open windows at both ends of your house to get that cross ventilation going.

Cultural customs of manipulating a building to suit human needs and respond to existing weather conditions influenced the way this participant approached sustainable design. Rather then integrate technologies, she was taught to use passive techniques. Physical location can also conversely inspire a desire to investigate alternative approaches to design. A male architect's critique of his physical environment demanded a future need for a new way to conceive of nature and the built environment: "I grew up in California, Illinois, New York. I've traveled all over as a kid, and I could see with the shopping centers and the housing projects and stuff, it was all pretty destructive, and it always seemed to me there had to be a better way." From a young age, he was inspired to imagine another reality, which shaped his investigation of topics in sustainable design as he matured.

Lastly, physical environment can refer to immediate environmental surroundings, such as homelife customs. In this case, the participant's parents developed customs from China that were influential in shaping her understanding of design and reuse. When asked how she developed her understanding of sustainable design, a female architectural designer responded:

> My parents were both immigrants from China and they were very poor, so when they came to the United States, like they did a lot of saving and reusing of stuff and just like teaching us how to not just be consumers and throw things away. And my dad's a contractor, so he would build homes for other people, but all the leftover materials he would drive home and turn it into something else…So it was always kind of interesting to live in this like constantly evolving home of, the reason our house is this color is because it's leftover paint from a different house, so he didn't have to buy it, and he didn't wanna throw it away so we just used it. Or like the paving stones in our garden are leftover tiles from a project. So that was the way I grew up.

7.6.3 Solutions for Change

Though participants were not overtly asked to state their opinions about solutions for a more sustainable architectural profession, they often shared their thoughts about how issues of sustainability could reach a wider audience. Three major themes were uncovered: sustainable education through design solutions, sustainable education through designers, and a general increased value of sustainability.

Figure 7.13 Solutions for Change Code Occurrences

Code Name	Total Occurrences Average	Male Occurrences Average	Female Occurrences Average	Gender Delta Average	% Gender Delta Average
Solutions for Change-Sustainable Education/ Awareness through Design Solutions	**0.54**	0.32	0.75	0.43	**79.45**
Solutions for Change-General Increased Awareness and Value of Sustainability Issues	**0.46**	0.32	0.58	0.27	**58.08**
Solutions for Change-Sustainable Education/ Awareness through Designers	**0.43**	0.41	0.46	0.05	11.33

Sustainable Education/ Awareness Through Design Solutions

As described by a male architect, principle of a conventional architecture firm, design solutions have the ability to act as examples to the community. He said: "What we've tried to do in the last 4 years is frame our approach to sustainability in terms of how can we do something that might be small in terms of its impact physically but large in terms of its impact to the profession and to culture." He aims to spread a larger message through demonstration projects that convey exploratory lessons about sustainability. He continued:

> The passive house that we did at Syracuse is a perfect example of trying to do something that could be strategic. Obviously, it's something that's done more prevalently in Europe, Northern Europe, but in the United States it would be a paradigm shift in terms of how to reduce fossil fuel consumption ultimately by going on the demand side of energy and just cutting back on how much energy is needed…It also is an opportunity to look at green jobs and how can you repurpose the workforce to build better. It's like, to me, a kind of potential win-win in terms of both the owner saves money long-term on utility bills because the thing uses 70% or 80% less energy than normal so it makes it affordable, but also you get a workforce that learns how to build better… So it's trying to be aware of, again, how can a small firm help to contribute to the bigger awareness.

Projects like this have the ability to communicate the benefits and feasibility of sustainable design to the user, the architectural profession, and greater society as a whole. In this case, the project itself acted as a solution for change, through its potential to educate people about passive techniques in sustainable design.

Sustainable Education/ Awareness Through Designers

Designers can also assume the role of educators and promote change in their client's and user's attitudes about sustainable design. A female architect discussed the process she undertakes when attempting to both satisfy a client's goals as well as educate that client about the most sustainable way to fulfill those needs. She stated:

> I often ask the question why first, and then I try to clarify step by step why it is that we have to build this kind of a building, and how is it that we can make it simpler. And I try to explain the implications that if you were living in a 500-square-foot apartment, and now you made it very well in Wall Street, and now you want a 10,000-square-foot place, it's not the same thing. There is a lot more that goes into it beyond owning this kind of a thing, just the fact that the distance between your kitchen and your bedroom is now going to be much further. So, I try to explain to them all the implications and try to simplify and minimize their problems…I go through materials, way of life, and so on, and try to make it a little more sustainable for them, and express something that they have, some concern that they may have for earth in the process.

This participant aims to draw out the essential concern for the environment that each client has within them by reassessing needs and educating them about the implications of each design decision made. Similarly, a male principle of a sustainable design firm stated:

> [I aim to] first to listen to what they're going for, and then to try and evaluate what they're asking for, and then offer them first a sustainable approach. And many times, people are like, 'Oh no, no. I hate small bathrooms.' Well, okay, but what is it that you really don't like? 'Well, I hate feeling cramped.' Okay, well, we can make a small bathroom that doesn't feel cramped, and this is what it might look like.

He believes by aiming to satisfy the client's programmatic needs in unconventional ways, he satisfies requirements of sustainability as well. His approach revisits the idea of sustainable design as the most appropriate and fundamentally needed solution, given a project's contexts. This philosophy is conveyed to clients in the programmatic phases, educating them about the benefits and simplicity of sustainable design.

General Increased Awareness and Value of Sustainability Issues

Lastly, participants discussed the need for a general increased awareness about the importance of sustainable design. In essence participants believed it comes down to an increased awareness about the effects of human actions. A male architect stated:

> You've got 4 people living in the house. They're gonna wash their dishes. They're gonna take showers. They're going to go to the bathroom. They're

> going to water whatever plants they have. So that's a particular load that you know you're gonna be running x number of gallons per day, right? It gets into the issue of are those people taking 5-minute showers or are they taking 30-minute showers, right?...You've got so many gallons per minute that are running. That's something that you can't control. You can manage that. You can try and get people, you can suggest people use it a certain way. You can have people look at their water bills and see how much water they're actually using per month, but water's so cheap particularly in the Northeast that it almost doesn't matter. So that's a particular use issue…When you get into something like, whatever, if there's a garden out back or something, what types of plants are being put out there? How much water do they require just to sustain themselves and grow? A tomato plant takes a lot of water. They taste pretty good. People like eating tomatoes. Are you gonna tell people to not grow tomatoes and make salads because [laughs] it takes too much water to do?

He does not necessarily call for radically modified levels of consumption, but believes if more people understood the costs and benefits of their actions, they would gain a better sense of why living sustainably is important. Ideally, an increased understanding would lead to modification of user behavior, which fundamentally dictates how the designed environment functions:

> And I think that, really, to be truly sustainable and energy efficient, I think we have to change the way we think about our level of comfort, because if we're gonna stay within a 5-degree band of temperature or narrower in some cases, year-round, you're gonna pay a higher price in terms of energy, and that you could just change your thermostat...But in general, I think we also have to educate our clients that they can save a lot of energy by accepting the fact that in the summer it might be 77 degrees in your building.

Even if a building is designed to be extremely efficient, it cannot function to its full potential if it is not being used properly. This participant asserts the need for users to take responsibility for their actions and understand their individual relationship to the built and natural environment rather then relying on the architect to fully address sustainability for them. A female participant believes "a lot of it is readjusting the view that we all have of we're the center of everything." She continued:

> You have to realize that everything you do if you open a window it affects your neighbor. You're using more energy in your building you have to get people on board and mostly it does boil down to personal comfort issues…Some people

> don't like to walk into a room and have those lights that automatically come on because they want to have them on all the time or it doesn't go on quick enough when they walk in the door. So a lot of the complaints I've heard or witnessed have been just a readjustment to seeing your life as a community, as opposed to 'it has to all be about me'...So it's just an adjustment. Learning is a big thing. I think in order to get people you have to tell them, explain to them why they might want to.

Another female participant similarly reported:

> I think that we need to live more simply, in smaller spaces, and if we could adapt our minds to that, that would be the biggest most dramatic change. If we continue to sustain our lives in this way with large houses, and the overuse of everything, that's not sustainable and is never going to be sustainable. But if we were to change our habits and understands that a family of four can live in a house that 600 ft.² not 2500 ft.²…when you compile the changes that that would make across the world, that's going to make the biggest difference.

These participants also see architects as educators, not just problem solvers who provide energy efficient design solutions. It is about shifting attitudes and perceptions, about talking to clients and showing them how they can modify their lifestyles to better fit the natural environment.

Both formative forces for conception of nature and sustainable design philosophy as well as participant reported solutions for change indicate areas that can influence a paradigmatic shift in thinking. This section highlights the importance of experiences living in and being surrounded by nature from a young age, as well as level of influence institutions have on individual beliefs. If areas that influence sustainable design philosophy, such as architectural education or professional practice, are embedded with the civilization: men/ nature: women dualism, they will act as 'field' that translates a negative set of assumptions to architect's 'habitus.' Everyone impacts the biophysical environment through their habits of daily living and thus should be required to become educated about how to lessen their negative environmental impacts. Thus, constitutive conditions for architect's understanding of sustainable design must reflect values of a desired, holistic paradigm. These values, once embedded in the architect's 'habitus' can

become solutions for change as the architect can use both herself and her design solutions as tools to educate the general population.

CHAPTER EIGHT

Discussion

8.1 Revisiting the Research Question

The analysis of qualitative results indicates a position regarding the primary research question: How do female architect's perception of, approach to, and philosophies about sustainable design differ from male architects? Though participant's outward responses suggest a prevailing belief that men and women's approaches to design do not differ and that variables in individual background influence design identity far greater then gender, analysis of the top five differences in code occurrence by gender indicate otherwise. Perceived gender differences demonstrated male participants consciously believed there is "no difference between male and female designs," while females reported men and women have "equally sensitive designs". The small difference between these two codes is that one claims men and women's designs to be the same, while the other qualifies their ability to approaches design 'sensitively'. Both sexes believed in "individual difference over gender difference" and were "critical of a dualistic

mentality." Overall, neither was comfortable making broad generalizations about a particular gender's attitudes, behaviors, or design products. That participant's rarely overtly admitted a belief in these gendered categorizations indicates they do not believe in them, they were reluctant to admit them to the researcher, or they subconsciously constitute their 'habitus'.

However, it is important to note a small number of participants did report differences in gendered attitudes in the workplace that were consistent with theoretical difference feminist categorizations of women and men. When gender differences were reported, women were categorized, through a combination of men and women's responses, as better listeners, more considerate of the human experience when designing, better at multi- tasking, more collaborative, more nurturing, and more holistic. The breakdown of male and female reported codes about women's characteristics in architectural practice can be seen in Tables 8.1 and 8.2, below.

Table 8.1 Perceived Gender Differences- Women's Views of Women

Code Name	Total Occurrences Average	Male Occurrences Average	Female Occurrences Average	Gender Delta Average	% Gender Delta Average
Women in Architecture Profession	0.33	0.14	**0.50**	0.36	**111.52**
Women Listen Better	0.24	0.14	**0.33**	0.20	**82.37**
Women Consider Human Experience More When Designing	0.17	0.00	**0.33**	0.33	**191.67**
Women Better at Multitasking	0.15	0.05	**0.25**	0.20	**134.42**
Women More Collaborative	0.15	0.05	**0.25**	0.20	**134.42**

Table 8.2 Perceived Gender Differences- Men's View of Women

Code Name	Total Occurrences Average	Male Occurrences Average	Female Occurrences Average	Gender Delta Average	% Gender Delta Average
Women in Architecture Profession	0.33	**0.14**	0.50	0.36	**111.52**
Women Listen Better	0.24	**0.14**	0.33	0.20	**82.37**
Women More Nurturing	0.11	**0.14**	0.08	-0.05	**48.79**
Sustainable Consultants as Women	0.07	**0.14**	0.00	-0.14	**209.09**
Women More Holistic	0.15	**0.09**	0.21	0.12	**77.16**

These perceived gender characterizations of women reflect nurture-based values discussed by cultural ecofeminists such the US Green Party, whose's matrifocal paradigm included concepts of "unity, cooperation, community, diversity, multiplicity, long-term, eco-centric, emphasis on process ("the means embody the ends"), bottom-up or empowerment (grassroots democracy for local communities; consensus decision making within the community), inclusive, and concern for others" (Gaard 144). Conversely, participants reported, through a combination of men and women's responses, men design from a position of ego, are prone to blame more in the workplace, are more structured, more practical, and more aggressive. The breakdown of male and female reported codes about women's characteristics in architectural practice can be seen in Tables 8.3 and 8.4, below.

Table 8.3 Perceived Gender Differences- Women's Views of Men

Code Name	Total Occurrences Average	Male Occurrences Average	Female Occurrences Average	Gender Delta Average	% Gender Delta Average
Male Ego	0.09	0.00	**0.17**	0.17	**191.67**
Men Blame More	0.07	0.05	**0.08**	0.04	**58.08**
Men More Structured	0.04	0.00	**0.08**	0.08	**191.67**

Table 8.4 Perceived Gender Differences- Men's View of Men

Code Name	Total Occurrences Average	Male Occurrences Average	Female Occurrences Average	Gender Delta Average	% Gender Delta Average
Men More Practical	0.09	**0.18**	0.00	-0.18	**209.09**
Men More Aggressive	0.04	**0.09**	0.00	-0.09	**209.09**
Men Blame More	0.07	**0.05**	0.08	0.04	**58.08**

The US Green Party's male paradigm equivalently included concepts of "hierarchy, conflict, competition, autonomy, separation, individual, public, short term, emphasis on outcome ("the ends justify the means"), and top-down or "majority rules" decision-making (distant government controlling local communities)" (Gaard 144). Parallels between participant responses and theoretical classifications indicates the prevalence of historical gender roles in today's society and suggests additional participants may reflect similar beliefs at an unconscious level. Additionally, it is interesting to note that despite participant's belief that individual difference supercedes gender as a formative force for design identity, gendered dualisms are still embedded in the cultural milieu that formatively constitute those individual differences. Thus, gender cannot be completely disregarded as a formative force for design identity.

Despite participant's overall rejection of gendered approaches to design, analysis of top five differences in code occurrence by gender found male and female beliefs *do* diverge. Comparison of the perceived gender differences Architectural Identity Map (figure 8.1) and top gender differences Architectural Identity Map (figure 8.2) showcases discrepancy between the conscious beliefs of male and female architects when asked about gender in sustainable design and the found differences based on analysis of male and female architect's reported approaches to sustainable design. The found differences reflect participant's culturally constituted attitudes towards sustainable design, which are more influenced by gender then participants had self-reported. The few perceived gender differences that were reported primarily occurred in the design process behavior circle of the Architectural Identity Map, which indicates perceived differences in male and female project management, design approaches, and personality characteristics in the workplace. These manifested in participant's beliefs about male and female conduct in the workplace determined by gender. Specific personality attributes, such as "women

consider human experience more when designing", "women better at multitasking", "women more collaborative", "men more practical", "men blame more", and "men more structured" though, not in popular belief, reflect participant's perceptions that male and female differences occur in the way they solve problems and relate to others. Conversely, found differences between males and females primarily occurred in the design products circle, which encompasses the realm of specific design strategies. Although male participants reported "no difference between male and female designs," and females reported "equally sensitive designs", it was found males and females did favor categorically different sustainable design strategies. Found differences in design strategies proves participant's predictions incorrect and indicates the architecture profession's lack of awareness of gender embedded dualisms.

Figure 8.1 Architecture Identity Infrastructure Perceived Gender Categorizations

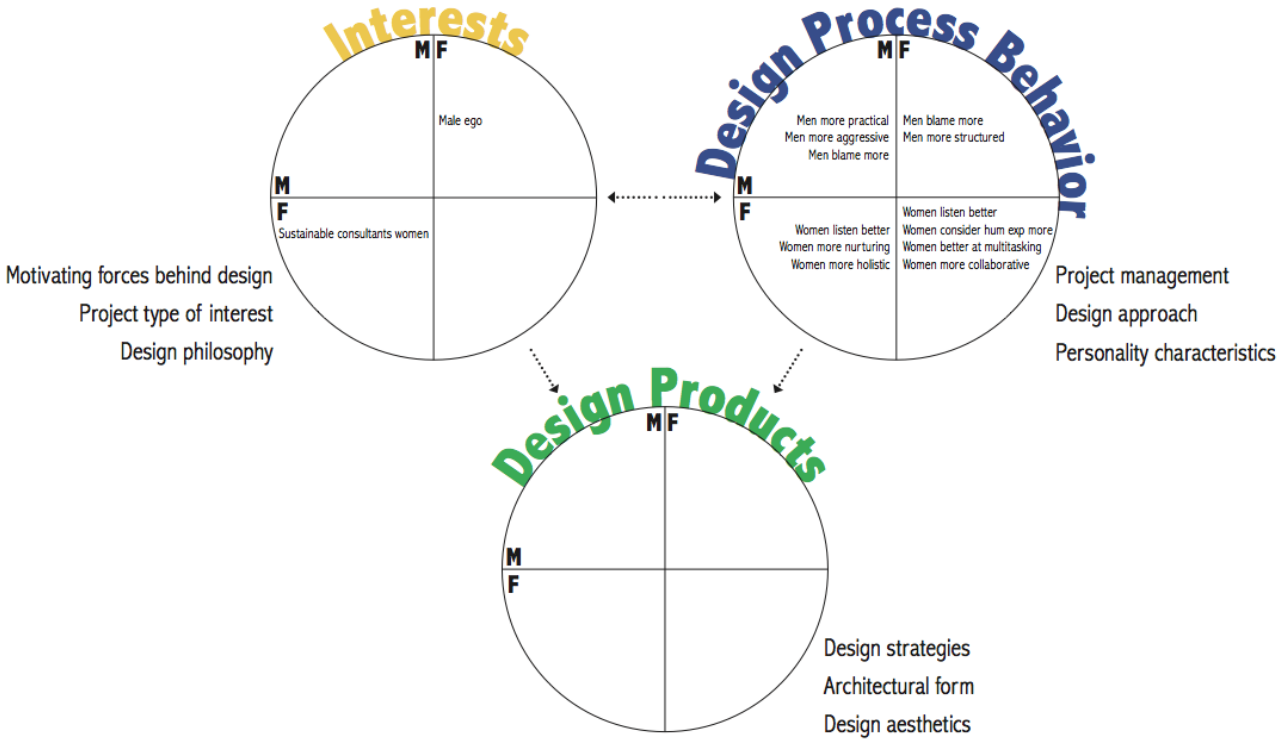
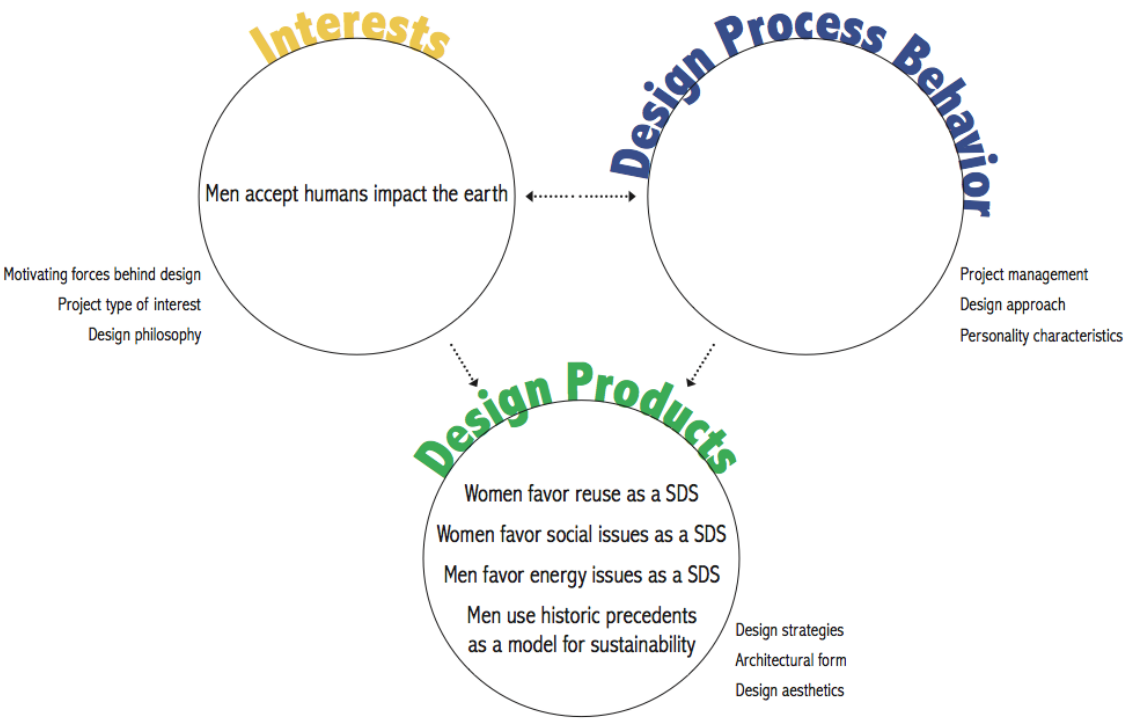


Figure 8.2 Architecture Identity Infrastructure for Top 5 Differences in Code by Gender



Male and female participants shared similar opinions on broad sustainable design philosophies, such as, 'appropriateness/need', and 'critical of greenwashing', which were amongst the most frequently mentioned codes for both males and females. However, they also agreed upon sustainable design strategies, 'context' and 'site', which can be hypothesized to reflect architectural discourse's modern definition of sustainable design. Due to the broad scope and popular acceptance of 'context' and 'site' as essential considerations in sustainable design, they can be categorized more as guiding philosophies then particular strategies. Additionally, top similarities in code occurrence by gender, 'barriers to sustainable design- cost', 'sustainable design philosophy- serve user's needs', and 'critical of LEED point system', indicate industry relevant themes that are so 'top of mind' they surpass limitation to a particular gender.

As seen in figure 8.2, male and female participant's differences in ideas about sustainable design were most commonly manifested in their specific approaches (sustainable design strategies) rather then sustainable design philosophies. It can be hypothesized that these differences occurred in context of strategies rather then philosophies due to the great number of possible strategies and influences of a dualistic 'field' of architectural practice. Males discussed interest in strategies of 'energy use' and 'historical precedent', while females expressed interest in strategies of 'reuse' and 'social issues'. These findings reflect theoretical difference feminist categorizations of male and female genders.

Male responses indicating interest in energy issues did not highlight particular technologies or solutions, but reflected theoretical categorizations of males as more practical. The US Green's male paradigm that includes "emphasis on outcome" manifests in male participant's approach to sustainable design through quantitative, measurable, performance-

based strategies (Gaard 144). A male principle and founder of a conventional design firm reflects this paradigm in his statement:

> The way I've been able to sort of feel comfortable with that kind of discourse is thinking about sustainable in terms of performance…We're able to show somebody by using solar power, what kinds of returns on investment they can get, what kinds of energy savings that they're getting…Using engineers that are very conversant with lower energy techniques, of heating and cooling spaces, those kinds of things, have become much more important to us.

Another top gender-differentiated code, "human/nature relationship- humans impact the earth" also supports the position of males as practical; men logically expressed the necessary acceptance of both the current state of the environmental crisis and human's inevitable impact on earth as a prerequisite to understand consequences. Rather than call for idealistic change, as women participants did, they engaged with reality and chose to determine action from a position once variables were evaluated. They also more readily accepted the current dualistic realities society upholds between civilization and nature, evident in their acceptance that humans want to dominate as natural. A male architect reported: "I think humans will naturally have an impact on natural environment…And that that's okay. And I think that at this point it's hard to find much of the earth that hasn't been impacted by humans…And I don't necessarily see that as a bad thing." It can be hypothesized that because male participants come from a dominant position, identified with civilization, they are subconsciously more comfortable with preserving that position then female participants who demand radical change. Similarly, male participant's favor techniques of historic precedent as models for sustainable design, which could indicate a connection with architectural history, theory, and education that could be indicative of male superiority in architectural education and practice that values the abstract over the concrete (mind over body).

Female participants displayed characteristics of empathy, community, connection, and consideration for the long term through their prioritization of social issues and reuse as sustainable design strategies. As mentioned in Chapter 4, efforts promoting positive gender traits considered feminine by cultural eco-feminist, Anne Goeke of Gylany Greens, are more connected to personal, social, and cultural transformation rather than political, legislative, and economic transformation (Gaard 146). This is reflected in female participant's interests in social issues, as they chose to integrate gender traits of sharing, connecting, empowering, empathy, respect, harmony, and participation through integrating consideration for community empowerment, education, and health into an understanding of sustainable design (Gaard 174). Their definitions of sustainability included consideration for all social and cultural contexts as well as environmental contexts. They viewed humans and nature as one and the same, and thus, human health, wellness, and happiness fundamentally inseparable from environmental health, as one female architect reported: "social issues are very much interconnected with physical issues, and that when we separate them it's an error." As discussed in chapter 5, Henry Atherton Frost, stated the female architect's "'interest in her profession embraces its social and human implications'" (Weisman 29). This sentiment is exemplified by one female participant's reported efforts to regenerate entire communities through sustainable design. She stated:

> What we wanted to do with the building was break down the wall and make the building sort of be the connection between one neighborhood, which was essentially white and wealthy, and the other neighborhood being Latino and struggling.....And what has happened is that now that the school is there, there is a rec center on the other side that was neglected, and it's gotten totally fixed up. It's got a new playing field. It's got stormwater management. It's got a mural project of its own, and the Community Development Corporation in the area is now calling this the big green block, and they're really seeing this as the start of really reviving that whole area.

Her design's intentions reflects Dolores Hayden's proposal for reorganization of a typical suburban block to socially connect residents, through solutions such as a village green play area, new street trees, vegetable gardens, and outdoor seating (Frank, 1989 205). Both the reported design solution and Hayden's feminist utopia are designed with regard for the larger community, providing them with the tools to strengthen themselves. Two of Nancy Hartsock's seven qualities that characterize feminine or feminist ways of knowing/ analyzing, "an underlying connectedness to others" and "a responsibility to respond to the needs of others," (Frank, 2000 297) as well as the US Green's attributes of "unity, cooperation, community, bottom-up or empowerment…and concern for others" are also theoretically consistent with female participant's interests in social issues" (Gaard 144).

Female participant's interest in reuse as a sustainable design strategy also reflects the US Green movement's additional inclusion of ecofeminist principle, *future focus* in the existing four pillars of the West German Greens (ecology, nonviolence, social responsibility, and grassroots democracy) (Gaard 142). It indicates "long-term" thinking, another characteristic of the US Green's matrifocal paradigm, as it is a tool to limit the amount of future waste and consider a building's full lifecycle from the initial design phases (Gaard 144). These females believe that architects should make sacrifices in the present for expected benefits of the future.

Both gender's reported beliefs to provide the most contextually appropriate design solutions for each project and user's needs as well as their criticality of greenwashing and the LEED point system, reflects a holistic sustainable design perspective. They aim to define sustainability not as one particular strategy that to be addressed during a single phase of a project, but as an all-encompassing consideration for life integrated into the essential process of design. This prevailing opinion exhibits hope for a non-dualistic paradigm that acknowledges a

union between civilization and nature. However, the stated differences indicate the continued presence of dualistic thinking in the architectural profession. Thus, the consequences of these findings must be addressed in context of their implications for the future of sustainable design.

8.2 Gender and an Alternate Paradigm

Author Leslie Weisman imagines that the feminist design movement has the power to transform society and generate interest around an alternate architectural paradigm. She writes: "The nature of the built environment is such that it can suggest the world transformed as well as the means for its transformation. If we are to design a society in which all people matter, more architects and planners need to become feminists and more feminists need to concern themselves with the design of our physical surroundings" (Weisman 179). However, although feminist design characteristics and utopias imagine positive directions for change, they are problematic because they continue to frame 'female' as 'other', reinforcing gender dualisms and thus, not resulting in a universal paradigm shift. Solely blaming men for issues of the dominant paradigm because they hierarchically rank higher and proposing an alternate paradigm as female, does little more then perpetuate dualisms that continue to reproduce the existing situation. Similarly,

the association of a non-hierarchical firm structure with feminist architecture, like Matrix, maintains gender dualisms through restricting this inclusive mentality to women while men continue to dominate the mainstream practice of architecture.

The same can be imagined for a sustainable design initiative led solely by women. *Women in Green*, by Kira Gould & Lance Hosey, claims women as pioneers for the future of sustainable design, essentially reinforcing cultural ecofeminist conceptions of 'women's ways of knowing.' The first page of the book highlights Interface chairman Ray Anderson who proclaims the future of sustainability will depend on women. He says:

> 'A new day dawning will build on the ascendancy of women in business, the professions, government, and education. This is one of the most encouraging of all trends, as women bring their right-brained, nurturing nature to bear on the seemingly intractable challenges created by left-brained men and their pre-occupation with bottom lines and other 'practical' considerations (Gould and Hosey, 1).

This assertion, once again dualistically accepts the male and female realms as categorically different. Furthermore, Gould & Hosey assert females and males apply these dualistic approaches to their understandings of sustainable design. They write: "By dealing with the environmental crisis as an isolationist security issue, manly green seeks environmentalism without sustainability. Manly green separates; *womanly green* unites" (Gould and Hosey 8). And in summary of their major thesis, they outline 'feminine principles' of sustainability:

> It isn't decisive; it's inclusive. It's not fragmented, it's holistic. It's about synthesis.
> It's about collaboration and building community. It's not about things, it's about relationships. It's not about products it's about process.
> It's about grassroots, building from the bottom up. Not proclamations from above.
> It's about interaction and dialogue, not solitary vision.
> It's about changing the status quo. Innovation requires new ways of thinking and doing.
> It's about long-term evolution, not the quick fix.
> It's about versatility and balance, adapting and improvising. It's not about single-mindedness.

> It's about deep-rooted respect and wonder. It's not about opportunism, it's about opportunity for all.
> It isn't conclusive; it's suggestive. In other words, all of the above must be taken with a grain of salt (Gould and Hosey 6).

Though some of these principles reflect attitudes reported primarily by female participants, such as "collaboration and building community" and "long-term evolution," limiting them to the female gender alone once again reinforces dualisms that perpetuate oppressions.

Although this study has exposed differences in 'male' and 'female' approaches to sustainable design consistent with gender specific paradigms, celebration of these diversified approaches would uphold troublesome power structures. Gendered associations in form, space, and design approaches are highly problematic as human civilization is on the brink of impending environmental and social catastrophe. As architectural theorist Chloethiel Woodard Smith asserts, maintaining dualisms disables 50% of the population from making necessary changes:

> Some say that women architects are different from men—that they are more sensitive, have a deeper understanding of life, are more human, have a more profound knowledge of space, and possess many other special qualities. Some say that they design better residences. Some even say that they design better kitchens because they understand cooking. But if participation in cooking were a prerequisite for designing the place in which to cook, then a man who cooks should be able to design a better kitchen than a woman who does not cook… I suggest that we do not know enough as yet to create such check lists for each sex. I suggest further that we would do a great disservice to the men who are our colleagues by not allowing them the possibility of being as 'human' and 'sensitive' and 'understanding' as our species is capable of being (Woodard Smith 224).

Following a social-ecofeminist perspective, these gender-stereotyped approaches to design are neither male nor female in nature. They are socialized through large-scale ideologies associating women with the realm of nature and men with the realm of civilization. When architectural theorist Karen Frank describes 'women's ways of knowing' she acknowledges the role of social ideology in gendered approaches: "these constructions are deeply influenced by our early

experiences and by the nature of our underlying relationship to the world. As the early experiences of women and men and their relationship to the world differ in significant ways, so too will their characteristic ways of knowing and analyzing" (Frank, 1989 201-2). Thus, these 'feminist' principles must carefully be posed as an alternative to a problematic existing paradigm that has been *socially associated* with the male gender, and NOT framed as biologically inherent to women. A greater identification of ALL people with their inherent biological functions and related emotional and spiritual feelings would create progress toward eliminating dualistic thinking and resulting negative consequences. Social ecofeminist, Ynestra King doesn't believe in a natural affinity between women and the natural world. She calls for "'a different kind of culture and politics that would integrate intuitive, spiritual and rational forms of knowledge, embracing both science and magic insofar as they enable us to transform the nature—culture distinction and to envision and create a free, ecological society'" (Mellor 75). This imagined society would be one that treats all humans as equals in personal, private, and political relations as, and equal with non-human nature (Adelson 620).

Though cultural ecofeminism provided a clear framework to analyze and discuss qualitative results, sustainable design practice will only be limited by gender specific approaches consistent with its categorizations of male and female. It is fundamentally necessary to examine the primary dualism between civilization and nature as the root issue that has created the dual oppression of women and non-human nature. A social ecofeminist perspective could be helpful to re-conceptualize structures between civilization and nature, removing the hierarchical valuation. Additional abolition of dualisms (through understanding polarities as part of a spectrum) should be extended to all hierarchical oppositions, which are related to the male: civilization/ female: nature dualism and constructed via Karen Warren's "logic of domination".

These include: mind/body, public/private, reason/emotion, order/chaos, abstract/concrete commonalities/difference, universal/particular, civic/domestic, rights/responsibilities, culture/nature, realm of freedom/realm of necessity, first world/two-thirds world, production/consumption, production/reproduction, politics/ethics (Gaard 256). This shift in mental structures of individuals, and cultural structures should exude connection with the earth and each other in the form of "care, friendship, love…radical democracy, co-operation, mutuality" (Plumwood, 1993 195-6). Gaard writes, "If we really want to create an ecological society, it's got to be a society that is not just free of toxins and poisons and free of ecological devastation, but it's a society hat is also free of the toxin of oppression, it's free of the toxin of racism, sexism, imperialism, capitalism. It's going to be a big beautiful blue-green sphere that is free of the toxins of domination and hierarchy" (Gaard 42-3). Understanding the relationship between civilization and nature as dyadic rather then dualistic, would ultimately reduce the instrumentalization of non-human nature and thus, additionally eliminate other associated oppressions.

8.3 Visions of an Alternative Sustainable Design Paradigm

Many current sustainable design solutions and reactions to environmental degradation have been treating problems symptomatically rather than addressing the fundamental roots: "For decades, the developed world consumer machine has raged forth practically unchallenged, leaving designers to attend the periphery, healing mere symptoms of what is, in essence, a fundamentally flawed system" (Chapman 9). A way outside of gender categorizations to conceptualize the paradigm shift that must occur is that of the rational western man vs. the planetary person. The planetary person can be anyone open to viewing the world in less dualistic way, while recognizing inherent beauty and worth in everything around her. Environmental philosopher, Greta Gaard, describes:

> Western man sees his world as: 1. Materialistic—reality composed of separate, discrete objects. Competition is the norm. 2. Patriarchy organizes and distributes power through

> dualism and hierarchy 3. Nation states—dividing the world locked in militarized conflict 4. Driven by progress 5. Machine as metaphor
>
> The Planetary Person sees the world as: 1. Connected—everything is interrelated. There is no enemy on which to project our "dark side" 2. Holistic—each life form is a unique manifestation of evolution 3. Dynamic—all of reality is energy in motion 4. Organized by ecological principles 5. The nation state is eroding 6. Hologram as the new model of reality 7. Social justice replaces progress as the goal of social and economic activity (Gaard 172).

This categorization which, expresses dualistic thinking about human civilization and the natural environment, successfully showcases the main faults of the current paradigm without making gender associations. The planetary person's philosophy should not be any more associated with women then men, converse to the arguments of cultural ecofeminists. Nondualist spiritualities that are specific in context and orientation rather than transcendent and rationalist provide a return to valuing the body as well as the mind, and understanding everything on this earth as part of the same natural realm (Plumwood, 2007 223).

To counter hyper-separation humans must be open to kinship and continuity with all living beings and realize they are one and the same with everything on this earth. True objective intrinsic value must be granted to all forms of nature, including humans, to eliminate the hierarchical celebration of the human mind, which continues to justify the instrumentalism of non-human nature. Aldo Leopold's Land Ethic, in which the human individual is a member of a biotic community of interdependent parts, forcing him to cooperate with others, including soil, water, plants, and animals, transforms the conception of humans as the ruler and conqueror of the land community, to a member of it (Leopold 130). This can be achieved through virtue ethics, respect, context sensitivity, emotional responsiveness, appreciation, gratitude, and generosity (Plumwood, 2007 263). These counter-hegemonic communicative virtues discussed by Val

Plumwood are helpful tools to re-conceptualize the human/ non-human relationship without reaffirming it:

1. Recognizing continuity with the non-human to counter dualistic construction of human/nature difference as radical discontinuity;
2. Reconstructing human identity in ways that acknowledge our animality, decenter rationality and abandon exclusionary concepts of rationality;
3. Acknowledging difference, nonhumans as 'other nations', as 'positively-other-than'. Including a non-hierarchical conception of more-than-human difference;
4. Decentering the human/nature contrast to allow a more inclusive, interspecies ethics;
5. Dehomogenisation of both "nature and "human" categories;
6. Openness to the non-human other as potentially an intentional and communicative being (the intentional recognition stance);
7. Active invitation to communicative interaction;
8. Redistribution, generosity stance;
9. Ethical consideration without closure directed towards an excluded class;
10. Non-ranking stance minimizing interspecies ranking and ranking contexts;
11. 'Studying up' in problem contexts (self-critical stance);
12. Negotiation, a two-way, mutual adjustment stance;
13. Attention to the other's complexity, outrunning of our knowledge (Plumwood, 2007 263).

Despite the necessity for individuals to adopt this worldview, a break in dualistic thinking must be embedded in a relational 'field' of real-world institutions, such as architecture to inspire change in individual's 'habitus'. The architecture profession has the ability to adapt a new perspective that can in turn positively impact the minds and actions of billions of people. Architectural Theorist, Aaron Betsky (xvii) describes how "space becomes a place through architecture, and we define ourselves within a certain time and place. We define the space in which we appear, and that act of appearance then defines our roles in society". The built form causes humans to formulate their place in the world, and thus has an influence over the beliefs and perceptions of those people. Architecture is "a physically present human environment that expresses the characteristic rhythmic functional patterns, which constitute a culture…the simple

forms of childhood and the complexities of full moral stature, the sacramental and the capricious moods that mark a social order, and that are repeated, through with characteristic selection, by every personal life springing from that order'" (Maguire 130). Along with architecture's environmental and social consequences, its strong influence on the values, beliefs, and lifestyles of society, indicate its productive responsibility to reverse its current paradigm and set a positive example. Andrew Saint (1997 16) argues that buildings with lasting power and meaning will always be a small proportion of the whole because the demand for them is set by culturally informed people rather than the general public. However, a shift needs to occur- architects must seek to provide holistic solutions for the users and broader community, even if they are ignorant to their merits and necessity. They must not settle for complacency and mediocrity; they must pave the way for others to do the same. This shift will lead to more environmentally responsible practices and thus, less harmful consequences, hopefully awakening general awareness of human's place in the world's greater biotic community

This new vision of architecture (and of the world) sees things as wholes rather than parts or fragments and recognizes life in inanimate objects like buildings (Alexander 22). It responds to social, environmental, economic, and user contexts and captures the spirit of place. It understands the natural in everything that we encounter, seeing only "*one* pattern of life, which includes the so-called living organisms and the so-called dead matter in a single living system" (Alexander 29). Thus, sustainable design strategies of 'energy issues' reported by male participants and 'reuse' and 'social issues' reported by female participants must be equally valued by both genders for the profession to reach a holistic and truly non-dualistic sustainable design paradigm. No one strategy can be favored over another, as both male and female participant's reported in their belief of sustainable design to provide the most appropriate design

solution given each project's unique contexts. But regardless of the project' s primary objective, a full spectrum of considerations must always be addressed, giving attention to both quantitative and qualitative aspects of the design.

The Cascadia Region Green Building Council and International Living Building Institute's Living Building Challenge 2.0 is a certification program alternate to U.S. Green Building Council's LEED that raises the bar to include a fuller spectrum of sustainability considerations. While LEED addresses areas of Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, Indoor Environmental Quality, Innovation in Design, and Regional Priority, the Living Building Challenge has an alternate seven performance areas, called 'Petals' that more fundamentally prioritize the qualitative in addition to the quantitative: Site, Water, Energy, Health, Materials, Equity and Beauty (Cascadia Region Green Building Council and International Living Building Institute 7). The Equity Petal address universal access and social justice through imperatives such as Human Scale and Humane Places, Democracy and Social Justice, and Rights to Nature. The Site Petal includes imperatives of Urban Agriculture and Car Free Living, the Health Petal includes imperatives for Biophilia, and the Beauty Petal, imperatives for Beauty + Spirit and Inspiration + Education. These design guidelines challenge the designer to consider a broader scope of life's activities and imagine all the impacts a building can have on its social, environmental, and economic contexts. It claims to "provide a framework for design, construction and the symbiotic relationship between people and all aspects of the built environment" and "calls for action that describe not only the 'building' of all of humanity's longest lasting artifacts, but also of the relationships and broader sense of community and connectivity they engender. It is a challenge to immerse ourselves in such a pursuit - and many refer to the ability to do so as a 'paradigm shift' (Cascadia Region Green Building Council and

International Living Building Institute 5).

Brenda and Robert Vale's 1991 guidelines for sustainable design, "Green Architecture" also includes all three gender-specific sustainable design solutions reported by participants: energy issues, reuse, and social issues. This reinforces the notion that all architects must both address building performance measures, social issues, and have regard for the long-term and that none of these solutions is sufficient alone. They outlined:

> Principle 1: Conserving energy
> A building should be constructed so as to minimize the need for fossil fuels to run it…
> Principle 3: Minimizing new resources
> A building should be designed so as to minimize the use of new resources and, at the end of its useful life, to form the resources for other architecture…
> Principle 4: Respect for users
> A green architecture recognizes the importance of all the people involved with it (Vale 158).

Similarly, William McDonough's 1992 Hannover Principles more elaborately discussed the necessary relationship architecture must foster between humanity and non-human nature. Rather then address specific design solutions he provides instructions for larger guiding philosophies, such as:

> 2. Recognize interdependence. The elements of human design interact with and depend upon the natural world, with broad and diverse implications at every scale. Expand design considerations to recognizing even distant effects.
>
> 3. Respect relationships between spirit and matter. Consider all aspects of human settlement including community, dwelling, industry and trade in terms of existing and evolving connections between spiritual and material consciousness.
>
> 5. Create safe objects of long-term value. Do not burden future generations with requirements for maintenance or vigilant administration of potential danger due to the careless creation of products, processes or standards.
>
> 7. Rely on natural energy flows. Human designs should, like the living world, derive their creative forces from perpetual solar income. Incorporate this energy efficiently and safely for responsible use (McDonough, 2006 159).

Each of his principles is based on the foundational premise that humans and non-human nature must be conceived as one and the same. These come from a non-dualistic perspective, rejecting human instrumentalization of nature, which can be extended to all relationships, including that of gender-specific design approaches. McDonough discusses the importance to, "consider all aspects of human settlement," "create safe objects of long-term value," and "rely on natural energy flows," again, addressing the gender- differentiated themes of social issues, reuse, and energy issues, as all essential to a holistic paradigm.

Jason F. McLennan's Six Governing Principles of Sustainable Design outlined in his book *The Philosophy of Sustainable Design* also demonstrates a multifaceted approach to sustainable design that includes "respect for the wisdom of natural systems—the biomimicry principle, respect for people—the human vitality principle, respect for place—the ecosystem principle, respect for lifecycle—the 'seven generations' principle, respect for energy and natural resources—the conservation principle, and respect for process—the holistic thinking principle (McLennan 39-88). Lastly, *Understanding Sustainable Architecture* (editors Terry Williamson, Antony Radford, and Helen Bennetts) present three essential aspects of sustainability as well—environmental, sociocultural, and economic systems—sometimes called the 'triple bottom line' by which the success of a design can be determined (see Table 8.1 below) (Williamson 4). These parallel holistic views can be incorporated into the institution of architecture to eliminate dualistic thinking that seeks to categorize, rationalize, and divide our world into hierarchal positions, leading to inequalities and destructive behavior. (See Appendix C for Brenda and Robert Vale's, "Green Architecture" and William McDonough's, The Hannover Principles full texts)

Table 8.5 Three Images of Architectural Sustainability (Williamson, 25).

Image	Dominant Concerns	Dominant Horizon	Symbolism/ aesthetics	Approach
Natural	Environmental place, ecosystems, health, balance	Local	'Touching the earth lightly' with forms echoing nature	Study local natural systems; emphasize sensitivity and humility in relation to nature
Cultural	Cultural place, people, *genius loci*, difference, cultural sustainability	Local	Highly contextual with forms, materials and construction methods echoing the local vernacular	Study local culture and building; emphasize local involvement and local expertise
Technical	Technologies, global environmental impacts, cost-benefit analysis, risk management	Global	Leading edge contemporary international systems	Study science, economics and technology; emphasize transnational expertise

8.4 Analyzing Pathways for Change

Jason F. McLennan (87-8) states: “Once someone’s design process has been ingrained within an individual, he or she views all future interactions with the built environment and the natural environment through this filter. The Respect for Process principle clearly states that to truly achieve sustainability, people must change the way they think, change the way they interact with other individuals in the profession and change the process to design and construction.” That a small number of male participants also reported strong interest in the consideration of social issues as integral to sustainable design, indicates the possibility for architects to redefine the ‘field’ and transcend socially constructed gender dualisms. A less dualistic relationship with non-human nature can be inspired in the simplest ways, as evident in participant’s reports of physical location and childhood experiences as formative of their conceptions of nature. A male participant reported:

> I went to summer camp in the Catoctin Mountains in Maryland…There were three and four-day trips outside of the actual summer camp land where we were hiking and sometimes living off of what we found. We spent the entire time outdoors—we did not use tents. I think that was the most connected I ever felt with nature

Similarly, social ecofeminist, Karen Warren's discovery of her relationship with non-human nature came about during a rock climbing experience, which transformed her view of the world:

> It was actually personally for me a rock-climbing experience that made me an ecofeminist, where I realized that within the span of a few days not only had my beliefs and values changed, but my behavior toward a rock had changed. I had gone from climbing it—trying to conquer it, trying to make it to the top with speed and agility as an athlete—to just being with the rock, and noticing the lichen and noticing the fungus, and noticing where the cracks in the rock were wet, and listening to the hummingbirds off of Lake Superior. And when I climbed that way…I came to realize…I could climb it in very different ways. And that my relationship to the rock was really up to me. That I could climb it as a conqueror or I could climb it as a friend; I could climb it as someone who cared about it…So I just started working with it, and asking, What would an ethic look like if the relationship were central, and not the nature of the realtors? That the question would not be, Is the rock a moral agent? But rather, How do you as a moral agent relate to the rock?...I realized that those kinds of concerns were exactly the kinds of concerns that women who called themselves ecofeminists were raising (Gaard 30).

Warren's experience with the rock and the male participant's experience camping display the feeling and language of caring, relationship, friendship, dialogue, as essential to the care perspective. It is more about the relationship itself and less about "'the nature of the *realtors* or parties to those relationships (e.g., realtors conceived as moral agents, right holders, interest carriers, or sentient beings)'" (King 91). This relational view avoids the dualism of an essentialist ethic, allowing every single person, male, female, or transgender, the opportunity to discover the beauty of connection with the world. The problem occurs in that not each relater feels a strong connection with non-human nature due to lack of experience or indoctrination of anthropocentric values. The key to overcoming these obstacles is experience, education and ecological literacy (King 91). Thus, social and psychological conditioning should be changed so that instead of

producing a soluble female sense of self, and a male separate sense of self, both boys and girls would be conditioned with a connected sense of self (Roach 58). Then, first-person narrative through experience with and appreciation of other people as well as non-human nature is essential to understanding that an ethic should emerge out of the relationship rather than be imposed upon it due to socially constructed forces.

Though we can imagine the principles of an alternate paradigm, the dominant practice of architecture continues to uphold a dualistic worldview. Following the Marxist/Marcusian belief that all revolution must occur through real change embedded in institutions, architecture must be reconfigured to be a paramount social institution that sets a positive example to eliminate the civilization/ nature dualism. Architects (and everyone else) must recognize dualistic mental structures as the fundamental force driving destructive behaviors and frame all plans for change in relation to that understanding: "By failing to understand the actual drivers underpinning the human consumption and waste of goods [anthropocentrism related to the civilization/nature dualism], sustainable design resigns itself to a peripheral activity, rather than the central pioneer of positive social change that it potentially could be" (Chapman 10). Environmental educator and chair of environmental studies program at Oberlin College, David Orr, agrees with the need for a complete paradigm shift: "The greatest impediment to an ecological design revolution is not, however, technological or scientific, but rather human. If intention is the first signal of design, as McDonough puts it, we must reckon with the fact that human intentions have been warped in recent history by violence and the systematic cultivation of greed, self-preoccupation, and mass consumerism. A real design revolution will have to transform human intentions and the larger political, economic, and institutional structure that permitted ecological degradation in the first place" (Orr, 2002 22-3). The predicament lies in the profession and society as a whole's

resistance to the drastic change needed due to reliance on the current system's money, power, and prestige. Thus, it is important to embed holistic thinking into institutions that will raise awareness of the negative impacts of the civilization/ nature dualism and envision positive change that will transform mental structures and human actions over time. In the words of Aldo Leopold, "'no important change in ethics was ever accomplished without an internal change in our intellectual emphasis, loyalties, affections, and convictions'" (King 92). It is paramount that the architectural profession makes this shift both in the beliefs of practitioners and in the institutions of architectural education, practice, and media, as reported by participants.

CHAPTER NINE

Conclusions

9.1 Limitations, Future Research, and Implications

A primary limitation of the study is that it did not investigate correlation of individual beliefs ('habitus') with firm's level of commitment to sustainability or gender leadership ('field') due to statistical complications. However, the purposive distribution of these variables allowed for a more diverse sample, reducing selection biases (inaccurate results from opinions of a narrow group within the sample). A future quantitative study could investigate the found phenomenon more closely with regards to these variables, which would lead to more specific findings about the causal mechanisms between gendered beliefs and sustainable design. Analysis of individual responses accounting for the firm's level of commitment to sustainability could indicate varying degrees of differences between male and female architects beliefs. It is hypothesized that there may be greater consistencies between male and female beliefs in firms that place more emphasis on holistic, sustainable design thinking, because both male and females

self select into a more aware environment. Additionally, though this study indicated formative forces for participant's sustainable design philosophies, the causal mechanisms of architectural education and professional practice should be further investigated to understand how gender dualistic thinking has been embedded in these 'fields' and has the opportunity to create change.

Extensions of this study should include more controlled qualitative and quantitative testing to investigate differences in male and female architect's sustainable design strategies, on which male and female's perception of, approach to, and philosophies about sustainable design differed most. It is also critical to collect data that will reveal *why* women and men express different approaches to sustainable design, through further methodical inquires into formative forces that generate these diversified approaches. This study could later be extended to inform a following secondary quantitative phase (survey), which could build upon the findings of the qualitative phase (Creswell 212). Multiple methods should be used to investigate the same phenomenon in effort to triangulate, which will offset biases and increase the validity of the results (each method has different limitations and biases) (Greene 256).

The quantitative data collection procedure could consist of a cross-sectional (data collected at one point in time) self-administered internet survey, which would be used to assist the interpretation of qualitative findings by generalizing the results across a larger sample (Creswell 146). An internet survey method would be chosen based on the ease and low costs of dissemination as well as the more rapid turnaround in data collection compared to the time-intensive qualitative phase (Creswell 146). It also has the benefit of providing a greater sense of privacy for respondents than a face-to-face or telephone method and is thus, less intrusive or burdening on the respondent's life (Salant and Dillman 36).

The population of interest for the survey is a stratified random sample of architects registered with the American Institute of Architects (AIA), the sampling frame. A stratified sample technique could be used to ensure specific characteristics of individuals are represented in the sample by selecting strata of AIA chapters within the selected states of New York, California, and Illinois, the three most prominent contributors to the architectural practice (Creswell 148). However, selection of the sample would remain random within the selected strata (Tashakkori 74). The AIA website provides contact information of state and local components, which would then lead to specific lists of members associated with each AIA Chapter. A simple random sample (a probability sample) would be taken using a random numbers table, in which any possible subset of distinct elements from the population is equally likely to be chosen for the sample. To reduce sampling error, sample size would be determined based on the criteria of attaining a 95 percent confidence level (Salant and Dillman 55). Selecting a large sample would also aid in the reduction of sampling error, which could lead to biased results (Salant and Dillman 17).

9.2 Concluding Hypothesis

This qualitative investigation indicated that despite participant's overt rejection of dualistic categorizations of male and female perceptions of, approaches to, and philosophies about sustainable design, subconscious social forces have embedded historical gender-dualistic patterns in sustainable design strategies. That both male and female participants shared sustainable design philosophies indicates the industry relevance of these broad themes, but the differentiation of particular strategies, indicates the embeddedness of dualistic thinking into the practice. In these contexts, architectural structures that already express human's superiority over non-human nature and males superiority over women, act as 'field' described by Bourdieu, which provides foundation for male and female architect's 'habitus' that manifests in dualistic sustainable design approaches (consistent with gender paradigms described by difference feminists). These approaches depict females as community oriented and males as practical.

Maintenance of gender dualistic approaches, however, is problematic in that it only requires 50% of the population to adopt a new paradigm that must become universal to create any real differences in reduced environmental destruction. Thus, the primary dualism of civilization/nature, which spawned the male/female dualism, must be broken through a re-conceptualization of humans and non-human nature as interconnected parts of a whole (dyadic rather then dualistic). Male and females should both adapt a theoretically historical 'female' perspective, but remove the mental categorization of 'female' to broaden it to a gender-neutral, holistic paradigm. This, reflected in architectural practice requires an approach that considers both qualitative and quantitative aspects of sustainable design (energy issues and social issues).

However, old patterns are extremely difficult to break due to the reflexively formative nature of the 'field/ habitus' relationship. Participants indicated that experience with nature (physical location, childhood experience), architectural education, professional practice, and individual research are institutions that have productive power to influence the 'habitus' of architects, who can then reflexively begin to shift the 'field' of sustainable design in which they work. Thus, a non-dualistic paradigm must be embedded within these institutions to imagine an alternate reality.

Participant's shared sustainable design philosophy of 'appropriateness/ need', however, optimistically indicates that applying solutions specific to each project's given contexts is the most important principle of sustainable design and that no one strategy should be hierarchically valued over another. This indicates a strong shift towards a more holistic conception of sustainable design, as this was the top occurring code for both male and female participants.

Lastly, it is important to note that this study has found nothing in practice is as conclusive as in theory. Theoretical categorizations of male and female attitudes, behaviors, and design

products, cannot accurately predict the current multi-variable realities of participants. However, they can serve as points for comparison, historical traces of opinions about social relations, and provide clues for motivating forces behind found phenomenon. Results indicate attitudinal tendencies of participants in the architectural profession, but counterexamples prove the inconclusiveness of these findings as well as the ability for the found patterns to shift with changing social contexts.

APPENDIX

Appendix A: Value Patterns in Sustainable Design Practice Interview Guide

Personal perception of human connection with nature

1. What is your definition of environment?
    a. Nature?
2. How would you describe your personal relationship with nature?
3. What are your values/ opinion/ beliefs pertaining to the natural environment?

Acquisition of individual beliefs about human connection with nature

1. How have you formed your views about your relationship with nature?
    a. Education?
    b. Current firm?
    c. Past firms?
2. How have your views evolved over time?
    a. What influenced these changes in personal views? How?

Personal beliefs about sustainable design

1. How would you define sustainable design?
2. Why have you decided to commit to working in sustainable design?

3. In your view, what are the most important aspects of sustainable design?
4. What specific design approaches enable the creation of the most sustainable building? (i.e. renewable energies, innovative technologies, passive design?)
5. What is your view on the use of technology for sustainable design solutions?
6. What is your view on LEED or other measures of sustainable design?

7. What has been the most fulfilling design project you have worked on? Why?
8. What has been the most challenging design project you have worked on? Why?
9. What are constraints to sustainable design?
10. What is an area in the sustainable design practice that you see room for improvement or growth?

11. What other values, apart from sustainability are of primary concern to you?

Acquisition of individual beliefs about sustainable design

1. How did you acquire your beliefs about sustainability in the built environment?
    a. Education?
    b. Current firm?
    c. Past firms?
2. How have your views evolved over time?
3. What influenced these changes in personal views? How?

Firm's sustainable design philosophy

1. Why have you decided to work for this firm?
2. What is your firm's sustainable design philosophy?
3. List as many adjectives as you can to describe the firm you work for.

Firm's design process

1. How would you describe your firm's design process?
2. How do different members of the firm collaborate on a design effort?

Firm structure/ office culture

3. How would you describe the firm structure/ office culture of this firm?
4. How is leadership organized within this firm?
5. How diverse do you feel your working environment is?

Women and men in sustainable design

1. Why do you believe there are significantly lower numbers of women than men in the architectural profession?
2. Do you believe women and men to have different ways of designing? How do they differ? Why?
3. What is your perception of the presence of women in the sustainable design field versus women in the normal architectural profession?

Appendix B: Informed Consent Form

Value Patterns in Sustainable Design Practice
Consent Form

You are being asked to take part in a research study about value patterns in environmental attitudes and approaches to sustainable design as they pertain to various positions within design professional practice. I am asking you to take part because of your expertise and relevant knowledge about sustainable design. Please read this form carefully and ask any questions you may have before agreeing to take part in the study.

Principal Investigator: Caitlin Baiada
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Department of Design and Environmental Analysis
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Faculty Advisor: John Jack Elliott
Cornell University
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Email: jre15@cornell.edu
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What the study is about: The purpose of this study is to understand how various people in the design profession perceive, approach, and hold values about sustainable design and the natural environment. I also seek to understand what influences the conception of an individual's sustainable design philosophy.

What I will ask you to do: If you agree to be in this study, I will conduct an interview with you. The interview will include questions about your personal views on sustainability and the natural environment and how they were acquired, your understanding of your company's design philosophy, design process, and office culture, and your views on gender and design. The interview will take about 30-60 minutes to complete. With your permission, I would also like to tape-record the interview.

Risks and benefits: I do not anticipate any risks to you participating in this study other than those encountered in day-to-day life. However, there are no benefits to you apart from your adding new knowledge to the fields of architectural theory, sustainable design, and environmental ethics.

Your answers will be confidential. The records of this study will be kept private. In any sort of report I make public I will not include any information that will make it possible to identify you. Research records will be kept in a locked file; only the researcher will have access to the records. If I tape-record the interview, I will destroy the tape after it has been transcribed, which I anticipate will be within two months of its taping.

Taking part is voluntary: Taking part in this study is completely voluntary. You may skip any questions that you do not want to answer. If you decide not to take part or to skip some of the questions, it will not affect your current or future relationship with Cornell University. If you decide to take part, you are free to withdraw at any time.

If you have questions: The researcher conducting this study is Caitlin Baiada. Please ask any questions you have *now*. If you have questions later, you may contact Caitlin Baiada at ceb75@cornell.edu or at 609-410-5603. If you have any questions or concerns regarding your rights as a subject in this study, you may contact the Institutional Review Board (IRB) at 607-255-5138 or access their website at http://www.irb.cornell.edu. You may also report your concerns or complaints anonymously through Ethicspoint (www.hotline.cornell.edu) or by calling toll free at 1-866-293-3077. Ethicspoint is an independent organization that serves as a liaison between Cornell University and the person bringing the complaint so that anonymity can be ensured.

You will be given a copy of this form to keep for your records.

Statement of Consent: I have read the above information, and have received answers to any questions I asked. I consent to take part in the study.

Your Signature _____ Date_____

Your Name (printed) _____

In addition to agreeing to participate, I also consent to having the interview tape-recorded.

Your Signature _____ Date_____

Signature of person obtaining consent _____
Date _____

Printed name of person obtaining consent _____
Date _____

This consent form will be kept by the researcher for at least three years beyond the end of the study and was approved by the IRB on [date].

Appendix C: Complete Code Analysis

Code Name	Total Occurances Average	Female Occurance Average	Male Occurances Average	Delta Average	Percent Delta Average
Sustainable Design Philosophy- Appropriateness/ Need	2.72	2.75	2.68	0.07	0.03
Sustainable Design Strategy- Context	1.98	1.88	2.09	-0.22	0.11
Critical of- Greenwashing	1.65	1.71	1.59	0.12	0.07
Sustainable Design Strategy- Site	1.26	1.08	1.45	-0.37	0.29
Formation of Sustainable Design Philosophy- Education	1.20	0.88	1.55	-0.67	0.56
Critical of- LEED point system	1.11	1.08	1.14	-0.05	0.05
Critical of- Fragmentation	1.04	0.88	1.23	-0.35	0.34
Sustainable Design Strategy- Energy Usage	1.02	0.67	1.41	-0.74	0.73
Crtical of- Technology	1.02	1.08	0.95	0.13	0.13
Barriers to Sustainable Design- Cost	0.96	0.96	0.95	0.00	0.00
Sustainable Design Strategy- Build for Long Term	0.91	1.04	0.77	0.27	0.29
Sustainable Design Philosophy- Social Issues	0.87	1.08	0.64	0.45	0.51
Sustainable Design Philosophy- Serve User Needs	0.87	0.88	0.86	0.01	0.01
Sustainable Design Philosophy- Holistic	0.85	0.79	0.91	-0.12	0.14
Formation of Conception of Nature- Physical Location	0.80	1.25	0.32	0.93	1.16
Formation of Sustainable Design Philosophy- Professional Experience	0.80	0.83	0.77	0.06	0.08
Sustainable Design Strategy- Technology	0.80	0.71	0.91	-0.20	0.25
Sustainable Design Strategy- Interdisciplinary Collaboration	0.80	0.75	0.86	-0.11	0.14
Human/ Nature Relationship- Humans Impact the Earth (neutral)	0.78	0.46	1.14	-0.68	0.87

Code Name	Total Occurances Average	Female Occurance Average	Male Occurances Average	Delta Average	Percent Delta Average
Sustainable Design Strategy- Passive Design	0.78	0.67	0.91	-0.24	0.31
Environment as- Surroundings	0.76	0.88	0.64	0.24	0.31
Formation of Conception of Nature- Childhood Experience	0.74	0.79	0.68	0.11	0.15
Sustainable Design Philosophy- Integral in Design Process	0.72	0.67	0.77	-0.11	0.15
Formation of Sustainable Design Philosophy- Individual Research	0.70	0.54	0.86	-0.32	0.46
Sustainable Design Strategy- Reuse	0.65	0.96	0.32	0.64	0.98
Critical of- Dualistic Mentality	0.63	0.50	0.77	-0.27	0.43
Human/ Nature Relationship- Distinction Nature and Civilization	0.63	0.58	0.68	-0.10	0.16
LEED- Raising Awareness	0.61	0.54	0.68	-0.14	0.23
Formation of Sustainable Design Philosophy- Architectural Education Does Not Prioritize Sustainability	0.59	0.38	0.82	-0.44	0.76
Human/ Nature Relationship- Desire Stronger Connection	0.59	0.50	0.68	-0.18	0.31
Formation of Sustainable Design Philosophy- Physical Location/ Environment	0.57	0.92	0.18	0.73	1.30
Formation of Conception of Nature- Experiences with Nature	0.54	0.83	0.23	0.61	1.12
Solution for Change- Sustainable Education/ Awareness Through Design Solutions	0.54	0.75	0.32	0.43	0.79
Sustainable Design Strategy- Historic Precedent	0.54	0.38	0.73	-0.35	0.65
Sustainable Design Philosophy- Resources	0.54	0.58	0.50	0.08	0.15

Code Name	Total Occurances Average	Female Occurance Average	Male Occurances Average	Delta Average	Percent Delta Average
Sustainable Design Philosophy- Understand Inherent Eessense/ Let Place Speak	**0.50**	**0.46**	**0.55**	**-0.09**	**0.17**
Nature as- Including man-made environments	0.48	0.33	0.64	-0.30	0.63
Barriers to Sustainable Design- Sustainable Aesthetic- Negative	0.48	0.42	0.55	-0.13	0.27
Solution for Change- General Increased Awareness and Value of Sustainability Issues	0.46	0.58	0.32	0.27	0.58
Critical of- Ego Architecture	0.46	0.38	0.55	-0.17	0.37
Critical of- Architecture as Fashion	0.46	0.50	0.41	0.09	0.20
Formation of Sustainable Design Philosophy- General Awareness/ Media/ Culture	0.46	0.42	0.50	-0.08	0.18
Sustainable Design Strategy- Community Involvement	0.43	0.63	0.23	0.40	0.91
Solution for Change- Sustainable Education/ Awareness Through Designers	0.43	0.46	0.41	0.05	0.11
Solution for Change- Payback of Upfront Costs of Sustainable Design	0.41	0.54	0.27	0.27	0.65
LEED- Benchmark	0.41	0.42	0.41	0.01	0.02
Lifestyle Reflects Sustainable Values	0.39	0.58	0.18	0.40	1.03
Sustainable Design Philosophy- Just Good Architecture	0.39	0.17	0.64	-0.47	1.20
Human/ Nature Relationship- Distinction Between Raw Nature and Man-made Nature	0.39	0.46	0.32	0.14	0.36
Gender Differences- Individual Difference over Gender Difference	0.39	0.42	0.36	0.05	0.14
Sustainable Design Philosophy- Balance	0.39	0.33	0.45	-0.12	0.31
Nature as- Untouched by Humans	0.37	0.46	0.27	0.19	0.50
Sustainable Design Strategy- Renewable Energy	0.37	0.29	0.45	-0.16	0.44

Code Name	Total Occurances Average	Female Occurance Average	Male Occurances Average	Delta Average	Percent Delta Average
Solution for Change- Government Regulation/ Intervention	0.35	0.29	0.41	-0.12	0.34
Gender Differences- Women In Architecture Profession	0.33	0.50	0.14	0.36	1.12
Formation of Sustainable Design Philosophy- Mentor	0.33	0.29	0.36	-0.07	0.22
Human/ Nature Relationship- Humans Included in Nature/ Biotic Community	0.33	0.33	0.32	0.02	0.05
Gender Differences- Equally Sensitive Designs	0.30	0.50	0.09	0.41	1.34
Nature as- No distinction between raw nature and other nature	0.30	0.17	0.45	-0.29	0.95
Critical of- Consumption	0.28	0.29	0.27	0.02	0.07
Sustainable Design Philosophy- Economic Concerns	0.26	0.38	0.14	0.24	0.91
Solution for Change- Sustainable Design as Low Cost	0.26	0.33	0.18	0.15	0.58
Sustainable Design Strategy- Embodied Energy	0.26	0.29	0.23	0.06	0.25
Critical of- Fast Culture	0.24	0.38	0.09	0.28	1.19
Gender Differences- Women Listen Better	0.24	0.33	0.14	0.20	0.82
Sustainable Design Strategy- Source locally	0.24	0.33	0.14	0.20	0.82
Human/ Nature Relationship- Separation from Humans Control of Environment (critical of technology)	0.24	0.17	0.32	-0.15	0.63
LEED as the extent of Sustainable Knowledge	0.24	0.29	0.18	0.11	0.46
Human/Nature Relationship- Nature for Human Use	0.22	0.29	0.14	0.16	0.71
LEED- Professional Opportunity	0.22	0.17	0.27	-0.11	0.49
Gender Differences- No Difference Men and Women Designs	0.22	0.21	0.23	-0.02	0.09
Sustainable Design Philosophy- Regenerative Design	0.22	0.21	0.23	-0.02	0.09
LEED too Expensive	0.20	0.25	0.14	0.11	0.58

Code Name	Total Occurances Average	Female Occurance Average	Male Occurances Average	Delta Average	Percent Delta Average
Solution for Change- Sense of Urgency	0.20	0.25	0.14	0.11	0.58
Sustainable Design Philosophy- Cause Least Destruction	0.20	0.13	0.27	-0.15	0.76
Gender Differences- Women Consider Human Experience More When Designing	0.17	0.33	0.00	0.33	1.92
Sustainable Design Strategy- Materials	0.17	0.29	0.05	0.25	1.42
Barriers to Sustainable Design- Client	0.17	0.21	0.14	0.07	0.41
Human/Nature Relationship- Humans Try to Control Nature	0.17	0.21	0.14	0.07	0.41
Sustainable Design Strategy- Efficient Use of Space	0.17	0.13	0.23	-0.10	0.59
Sustainable Design Strategy- Flexibility	0.17	0.21	0.14	0.07	0.41
Solution for Change- Better Architectural Education/ Ecoliteracy	0.17	0.17	0.18	-0.02	0.09
Barriers to Sustainable Design- Lack of Knowledge	0.15	0.00	0.32	-0.32	2.09
Gender Differences- Women More Collaborative	0.15	0.25	0.05	0.20	1.34
Gender Differences- Women Better at Mulitasking	0.15	0.25	0.05	0.20	1.34
Human/Nature Relationship- Blurred Boundaries	0.15	0.25	0.05	0.20	1.34
Barriers to Sustainable Design- Cost/ Time of Maintenence	0.15	0.08	0.23	-0.14	0.95
Environment as- Space for Humans	0.15	0.21	0.09	0.12	0.77
Gender Differences- Women More Holistic	0.15	0.21	0.09	0.12	0.77
Sustainable Design Strategy- Multiple Use	0.15	0.17	0.14	0.03	0.20
Barriers to Sustainable Design- Existing Infrastructure	0.13	0.00	0.27	-0.27	2.09
Sustainable Design Philosophy- Environment Self-Sustaining	0.13	0.08	0.18	-0.10	0.76
Sustainable Design Strategy- Waste	0.13	0.17	0.09	0.08	0.58

Code Name	Total Occurances Average	Female Occurance Average	Male Occurances Average	Delta Average	Percent Delta Average
Sustainable Design Strategy- Water	0.13	0.13	0.14	-0.01	0.09
Critical of- Anthropocentric Thinking	0.11	0.13	0.09	0.03	0.31
Gender Differences- Women More Nurturing	0.11	0.08	0.14	-0.05	0.49
Critical of- Growth	0.09	0.00	0.18	-0.18	2.09
Environment as- Natural Environment	0.09	0.17	0.00	0.17	1.92
Gender Differences- Men More Practical	0.09	0.00	0.18	-0.18	2.09
Gender Differences- Male Ego	0.09	0.17	0.00	0.17	1.92
Sustainable Design Strategy- Small-scale changes	0.09	0.17	0.00	0.17	1.92
Gender Differences- Women More Sensitive	0.09	0.13	0.05	0.08	0.91
Gender Differences- Women More Flexible	0.09	0.13	0.05	0.08	0.91
Environment as- Atmosphere/ Experience	0.09	0.08	0.09	-0.01	0.09
Formation of Conception of Nature- Enjoyment of Nature as Relaxing	0.09	0.08	0.09	-0.01	0.09
Formation of Conception of Nature- Enjoyment of Nature's Beauty	0.09	0.08	0.09	-0.01	0.09
Human/Nature Relationship- Humans Can Learn From Nature	0.09	0.08	0.09	-0.01	0.09
Human/ Nature Relatinoship- Humans as Stewards of the Environment	0.09	0.08	0.09	-0.01	0.09
Sustainable Design Philosophy- Distinction Between Design and Sustainable Design	0.09	0.08	0.09	-0.01	0.09
Critical of- Architecture as Business	0.07	0.13	0.00	0.13	1.92
Formation of Sustainable Design Philosophy- Younger Generations More Ecoliterate	0.07	0.13	0.00	0.13	1.92
Gender Differences- Sustainable Consultants Women	0.07	0.00	0.14	-0.14	2.09
Admittance of Non-sustainable lifestyle	0.07	0.00	0.14	-0.14	2.09

Code Name	Total Occurances Average	Female Occurance Average	Male Occurances Average	Delta Average	Percent Delta Average
Gender Differences- Men Blame More	0.07	0.08	0.05	0.04	0.58
Sustainable Design Strategy- Aesthetics for Long Term	0.07	0.08	0.05	0.04	0.58
Interior Design Industry Lack of Attention to Sustainable Design	0.04	0.08	0.00	0.08	1.92
Barriers to Sustainable Design- LEED Too Complicated	0.04	0.00	0.09	-0.09	2.09
Critical of- Ideology/ ism	0.04	0.00	0.09	-0.09	2.09
Gender Differences- Men More Aggressive	0.04	0.00	0.09	-0.09	2.09
Gender Differences- Men More Structured	0.04	0.08	0.00	0.08	1.92
Gender Differences- Women practical	0.04	0.00	0.09	-0.09	2.09
Gender Differences- Women More Practical	0.04	0.00	0.09	-0.09	2.09
Solution for Change- Office Culture Non-Hierarchical	0.04	0.00	0.09	-0.09	2.09
Sustainable Design Strategy- Metric to Measure Success- POE	0.04	0.00	0.09	-0.09	2.09
Barriers to Sustainable Design- Codes/Zoning	0.02	0.04	0.00	0.04	1.92
Barriers to Sustainable Design- Research	0.02	0.04	0.00	0.04	1.92
Formation of Conception of Nature- Education	0.02	0.04	0.00	0.04	1.92
Formation of Sustainable Design Philosophy- Children (7th Generation)	0.02	0.00	0.05	-0.05	2.09
Gender Differences- Women Consider Social and Political Issues More When Designing	0.02	0.00	0.05	-0.05	2.09
Sustainable Design Strategy- Practicality	0.02	0.00	0.05	-0.05	2.09

Appendix D: Non-dualistic Sustainable Design Paradigms

Brenda and Robert Vale, Green Architecture. 1991

"Principles that together could build into a green architecture"

Principle 1: Conserving energy
A building should be constructed so as to minimize the need for fossil fuels to run it…

Principle 2: Working with climate
Buildings should be designed to work with climate and natural energy sources…

Principle 3: Minimizing new resources
A building should be designed so as to minimize the use of new resources and, at the end of its useful life, to form the resources for other architecture…

Principle 4: Respect for users
A green architecture recognizes the importance of all the people involved with it…

Principle 5: Respect for site
A building will 'touch-this-earth-lightly'…

Principle 6: Holism
All the green principles need to be embodied in a holistic approach to the built environment (Vale 158).

William McDonough, The Hannover Principles. 1992

1. Insist on rights of humanity and nature to co-exist in a healthy, supportive, diverse and sustainable condition.

2. Recognize interdependence. The elements of human design interact with and depend upon the natural world, with broad and diverse implications at every scale. Expand design considerations to recognizing even distant effects.

3. Respect relationships between spirit and matter. Consider all aspects of human settlement including community, dwelling, industry and trade in terms of existing and evolving connections between spiritual and material consciousness.

4. Accept responsibility for the consequences of design decisions upon human well-being, the viability of natural systems and their right to co-exist.

5. Create safe objects of long-term value. Do not burden future generations with requirements for maintenance or vigilant administration of potential danger due to the careless creation of products, processes or standards.

6. Eliminate the concept of waste. Evaluate and optimize the full life-cycle of products and processes, to approach the state of natural systems, in which there is no waste.

7. Rely on natural energy flows. Human designs should, like the living world, derive their creative forces from perpetual solar income. Incorporate this energy efficiently and safely for responsible use.

8. Understand the limitations of design. No human creation lasts forever and design does not solve all problems. Those who create and plan should practice humility in the face of nature. Treat nature as a model and mentor, not as an inconvenience to be evaded or controlled.

9. Seek constant improvement by the sharing of knowledge. Encourage direct and open communication between colleagues, patrons, manufacturers and users to link long term sustainable considerations with ethical responsibility, and re-establish the integral relationship between natural processes and human activity (McDonough, 2006 159).

Appendix E: Survey Design for PAM 6010 Qualitative/Quantitative Mix Methods Approaches

The survey design is broken into two main sections that inquire about the respondent's perception about the relationship between humans and the natural environment and the respondent's approach to sustainable design, respectively. The first section is primarily composed of 16 questions adapted from the New Ecological Paradigm Scale, a commonly used tool to gather information about a group's environmental beliefs. This set of questions was selected due to its ubiquitous success as an environmental beliefs measurement tool and Priscilla Salant & Don Dillman's description of this question type as less demanding for the respondent to answer, as well as easier for the researcher to code and analyze (Salant and Dillman 82). The second section of the survey, which questions beliefs about sustainable design, consists of close-ended with unordered choice questions, some in a ranking format and some in a forced-choice format. These questions aim to investigate the respondent's reasons for and priorities when designing as well as elicit a more specific understanding of techniques and values integrated when involved in a sustainable design project. Because comparison of the dependent variables, participant's beliefs and values, to independent variables, job title and gender, is of interest, personal information would be collected at the end of the survey.

An Assessment of Environmental Attitudes and Beliefs in the Design Profession

The purpose of this survey is to understand how various people in the architectural and interior design practice perceive, approach, and hold values about sustainable design and the natural environment. I also seek to understand the causal mechanisms related to these beliefs. You have been asked to take part because of your expertise and relevant knowledge about sustainable design as well as your position within the design professional practice. **Feel free to skip any questions** you would prefer not to answer. You are able to drop out of this study at any time.

The following questions ask about your perception of the relationship between humans and the natural environment and your acquisition of these beliefs.

1) When people talk about the environment, which of the following do you think of first?[1]

1 Pollution in towns and cities
2 Green and pleasant landscapes
3 Earthquakes, floods and other natural disasters
4 Man-made disasters such as oil spills, industrial accidents
5 Climate change
6 Protecting nature
7 The state of the environment our children will inherit/
8 The quality of life where you live
9 Using up natural resources

Please indicate whether you *Strongly Agree (SA), Agree (A), are Unsure (U), Disagree (D) or Strongly Disagree (SD).*

2) I have a moral responsibility to take care of the entire community of this earth: the wilderness and forests, the oceans, the lakes and the rivers.[2]

SA A U D SD

3) We are approaching the limit of the number of people the earth can support.[3]

SA A U D SD

4) Humans have the right to modify the natural environment to suit their needs. [4]

SA A U D SD

5) When humans interfere with nature it often produces disastrous consequences. [5]

SA A U D SD

6) Human ingenuity will insure that we do NOT make the earth unlivable. [6]

SA A U D SD

7) Humans are severely abusing the environment. [7]

SA A U D SD

8) The earth has plenty of natural resources if we just learn how to develop them. [8]

SA A U D SD

9) Plants and animals have as much right as humans to exist. [9]

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[1] Eurobarometer **(**Mar. 15, 2008)
[2] Sierra Club (Apr. 2008)
[3] Measuring Endorsement of the New Ecological Paradigm: A Revised NEP Scale (1990)
[4] Measuring Endorsement of the New Ecological Paradigm: A Revised NEP Scale (1990)
[5] Measuring Endorsement of the New Ecological Paradigm: A Revised NEP Scale (1990)
[6] Measuring Endorsement of the New Ecological Paradigm: A Revised NEP Scale (1990)
[7] Measuring Endorsement of the New Ecological Paradigm: A Revised NEP Scale (1990)
[8] Measuring Endorsement of the New Ecological Paradigm: A Revised NEP Scale (1990)
[9] Measuring Endorsement of the New Ecological Paradigm: A Revised NEP Scale (1990)

SA A U D SD

10) The balance of nature is strong enough to cope with the impacts of modern industrial nations. [10]
SA A U D SD

Please indicate whether you *Strongly Agree (SA), Agree (A), are Unsure (U), Disagree (D) or Strongly Disagree (SD).*

11) Despite our special abilities humans are still subject to the laws of nature. [11]
SA A U D SD

12) The so-called "ecological crisis" facing humankind has been greatly exaggerated. [12]
SA A U D SD

13) The earth is like a spaceship with very limited room and resources. [13]
SA A U D SD

14) Humans were meant to rule over the rest of nature. [14]
SA A U D SD

15) The balance of nature is very delicate and easily upset. [15]
SA A U D SD

16) Humans will eventually learn enough about how nature works to be able to control it. [16]
SA A U D SD

17) It is important to protect the environment, even if it costs some jobs or otherwise reduces our standard of living[17]
SA A U D SD

18) What has had the largest influence in the formation of your current view of nature? Please rank your top 3 choices (1 being the largest influence)

1	Education	_____
2	Literature/Discourse	_____
3	Work	_____
4	Childhood experience (before age 13)	_____
5	Personal experience (after age 13)	_____
6	Influential individual	_____
7	Religious beliefs	_____

[10] Measuring Endorsement of the New Ecological Paradigm: A Revised NEP Scale (1990)
[11] Measuring Endorsement of the New Ecological Paradigm: A Revised NEP Scale (1990)
[12] Measuring Endorsement of the New Ecological Paradigm: A Revised NEP Scale (1990)
[13] Measuring Endorsement of the New Ecological Paradigm: A Revised NEP Scale (1990)
[14] Measuring Endorsement of the New Ecological Paradigm: A Revised NEP Scale (1990)
[15] Measuring Endorsement of the New Ecological Paradigm: A Revised NEP Scale (1990)
[16] Measuring Endorsement of the New Ecological Paradigm: A Revised NEP Scale (1990)
[17] Wisconsin Policy Research Institute (Sep. 2009)

8 Friend/ family views _____
9 Media/ news _____

19) At what age did you first recognize a personal connection with the natural environment?

1 1-10 years
2 10-20 years
3 21-30 years
4 31-40 years
5 41-50 years
6 51-60 years
7 61+ years
8 I do not have a personal connection with the natural environment

20) Have these beliefs changed in the last 5 years?

1 Yes
2 No

21) What have you done to change your lifestyle to make it more environmentally sustainable? Please circle ALL that apply[18]

1 Recycling
2 Paying bills online and/ or receiving paperless statements
3 Buying more locally produced food and/ or goods
4 Bringing my own bags to stores instead of using paper or plastic ones
5 Buying green household products
6 Installing resource friendly appliances
7 Buying more used products
8 Discontinuing purchases of plastic water bottles
9 Composting
10 Taking fewer airplane flights
11 Cutting down on my energy consumption (turning down air conditioning or heating, not leaving appliances on stand-by, buying energy saving light bulbs, buying energy efficient appliances, etc.)
12 Cutting down my water consumption
13 Carpooling
14 Commuting to work in a way other than an automobile
15 Have considered/ have become a vegetarian
16 Purchased a hybrid car
17 Spend more than 1 hour a week engaging with nature

That's all of the questions on your understanding of the relationship between humans and nature. Now I would like to ask about your beliefs about and approach to sustainable design.

22) Why did you decide to become a designer?

[18] Harris Interactive/ BBC (Apr. 24, 2009)

1 To solve design problems
2 To express a creative vision
3 To become a recognized designer
4 To create social/cultural change
5 Other _____

23) Which of the following is the most important to consider when designing? Please rank your top 3 choices (1 being the largest influence)

1 Aesthetics _____
2 Sustainability _____
3 Function/ Program _____
4 Innovation _____
5 Client needs _____

24) Supporting the environmental movement is more important to me on a: [19]

1 Personal level
2 Professional level
3 They are both equally important to me
4 Neither is important to me

25) If a company was genuinely interested in energy and environmental issues, which of the following do you most want them to focus on?[20]

1 Greater energy efficiency
2 A healthier environment
3 A cleaner environment
4 Reduced energy consumption
5 Greater environmental stewardship
6 Becoming carbon neutral

26) What elements are most important when designing a sustainable building? Please rank your top 3 choices (1 being the most important)

1 Site _____
2 Water Efficiency _____
3 Energy Efficiency _____
4 Materials _____
5 Indoor Environmental Quality _____

27) Which of the listed is most important when designing a sustainable building? Please rank your top 3 choices (1 being the most important)

1 Achieving certification of standardization _____
2 Place-based, contextual design _____
3 The use of innovative green technologies _____
4 Creating a healthy environment for users _____

[19] Education, Environmental Attitudes and The Design Professions: A Master's Thesis, Traci R. Rider (August 2005)
[20] The Word Doctors (Jan. 21, 2010)

5 Creating a comfortable environment for users _____
6 Creating an energy efficient building _____
7 Promoting ecological literacy among occupants _____
8 Creating a zero impact building _____
9 Other _____ _____

28) What, in your opinion is the largest constraint to sustainable design?

1 It is too expensive
2 It is too time consuming
3 It is not aesthetically pleasing
4 There is not enough market interest
5 It is just a trend
6 There are no constraints to sustainable design
7 Other _____

29) What has had the largest influence on your beliefs about sustainable design? Please rank your top 3 choices (1 being the largest influence)

1 Education _____
2 Literature/Discourse _____
3 Work _____
4 Childhood experience (before age 13) _____
5 Personal experience (after age 13) _____
6 Influential individual _____
7 Religious beliefs _____
8 Friend/ family views _____
9 Media/ news _____

30) At what age did you first learn about sustainable design?

1 1-10 years
2 10-20 years
3 21-30 years
4 31-40 years
5 41-50 years
6 51-60 years
7 61+ years
8 I don't know about sustainable design

31) Have these beliefs changed over the last 5 years?

1 Yes
2 No

Finally, I would like to ask you a little about yourself.

32) What is your job title? _____

33) What is your gender?

1 Male
2 Female

Surveys Cited

Education, Environmental Attitudes and The Design Professions: A Master's Thesis, Traci R. Rider (August 2005)

Eurobarometer **(**Mar. 15, 2008)

Harris Interactive/ BBC (Apr. 24, 2009)

Measuring Endorsement of the New Ecological Paradigm: A Revised NEP Scale (1990)

Sierra Club (Apr. 2008)

The Word Doctors (Jan. 21, 2010)

Wisconsin Policy Research Institute (Sep. 2009)

BIBLIOGRAPHY

Adelson, Glenn, and James Engell, Brent Ranalli, KP Van Anglen, eds. *Environment: An Interdisciplinary Anthology.* New Haven: Yale University Press, 2008. Print.

Ahrentzen, Sherry. "The F Word in Architecture: Feminist Analyses In/Of/For Architecture." *Reconstructing Architecture, Critical Discourses and Social Practices*. Eds. Thomas A Dutton and Lian Hurst Mann. Minneapolis, MN: University of Minnesota Press, 1996. Print.

Alexander, Christopher. *The Nature of Order, An Essay on the Art of Building and the Nature of the Universe*, *Book One- The Phenomenon of Life*. Berkeley, CA: Center for Environmental Structure: 2002.

Benton, Ted. "From Locke and Rousseau to Darwin and Wallace." *The SAGE Handbook of Environment and Society.* Eds. Jules Pretty, Andy Ball, Ted Benton, Julia Guivant, David R Lee, David Orr, Max Pfeffer, Hugh Ward. Los Angeles; London: SAGE, 2007. 35-49. Print.

Betsky, Aaron. *Building Sex: Men, Women, Architecture and the Construction of Sexuality.* New York: William Morrow, 1995. Print.

Bourdieu, Pierre and Loic J. D. Wacquant. *An Invitation to Reflexive Sociology.* Chicago; London: University of Chicago Press, 1992. Print.

Brown, Denise Scott. "Room at the Top? Sexism and the Star System in Architecture." *Gender Space Architecture: An Interdisciplinary Introduction.* Eds. Jane Rendell, Barbara Penner, and Iain Borden. London; New York: Routledge, 2000. 258-265. Print.

Buildings Energy Databook, 2006. "US Department of Energy and Annual Energy Review 2007." *Energy Information Administration. U.S.* Department of Energy, June 2008. Web. 15 April 2012. <http://www.eia.doe.gov/aer/pdf/aer.pdf.>.

Cascadia Region Green Building Council and International Living Building Institute. "Living Building Challenge 2.0. A Visionary Path to a Restorative Future." *International Living Building Challenge.* April 2010.

Chaplin, Sarah. "Architecture." *Feminist Visual Culture.* Eds. Fiona Carson and Claire Pajaczkowska. New York: Routledge, 2001. Print.

Chapman, Johnathan. *Emotionally Durable Design: Objects, Experiences & Empathy.* London; Sterling, VA: Earthscan, 2005. Print.

Charmaz, Kathy. "Grounded Theory: The Logic of Grounded Theory." *Rethinking Methods in Psychology*. Eds. Smith, Harre and Van Langenhove. London; Thousand Oaks, Calif: Sage Publications, 1995. 27-49. Print.

Coleman, Deborah. "Introduction." *Architecture and Feminism.* Eds. Debra Coleman, Elizabeth Danze, Carol Henderson. New York: Princeton Architectural Press, 1996. ix- 1. Print.

Collard, Andree. *Rape of the Wild.* Bloomington: Indiana University Press, 1988. Print.

Crabtree, Louise. "Disintegrated Houses: Exploring Ecofeminist Housing and Urban Design Option." *Antipode* Volume 38, Issue 4 (September 2006): 711-734. Print.

Creswell, John W. *Research Design, Qualitative, Quantitative, and Mixed Methods Approaches.* Thousand Oaks, CA: Sage Publications, 2009. Print.

Denneson, Travis J. "Society and the Individual in Nietzsche's The Will to Power." *The Secular Web.* The Secular Web, 2011. Web. 18 April 2012. <http://www.infidels.org/library/modern/travis_denneson/power.html>

Descartes, Rene. "Meditations on First Philosophy (1641)." *Modern Philosophy, An Anthology of Primary Sources*. Eds. Roger Ariew and Eric Watkins. Indianapolis, IN: Hackett Publishing Company, Inc, 1998. 22-55. Print.

Fausch, Deborah. *Architecture in Fashion: Undressing Architecture Fashion, Gender, and Modernity.* New York: Princeton Architectural Press, 1994. Print.

Fausch, Deborah. "The Knowledge of the Body and Presence of History—Toward a Feminist Architecture." *Architecture and Feminism.* Eds. Debra Coleman, Elizabeth Danze, Carol Henderson. New York: Princeton Architectural Press, 1996. 38-59. Print.

Frank, Karen A. and Bianca Lepori. *Architecture from the Inside Out.* Chichester, England; Hoboken, NJ: Wiley-Academy, 2007. Print.

Frank, Karen A. "A Feminist Approach to Architecture-Acknowledging Women's Ways of Knowing." *Architecture: A Place for Women.* Eds. Ellen Perry Berkeley and Matilda McQuaid. Washington: Smithsonian Institution Press, 1989. Print.

Frank, Karen A. "A Feminist Approach to Architecture: Acknowledging Women's Ways of Knowing." *Gender Space Architecture: An Interdisciplinary Introduction.* Eds. Jane Rendell, Barbara Penner, and Iain Borden. London; New York: Routledge, 2000. 295-305. Print.

Gaard, Greta. *Ecological Politics*. Philadelphia: Temple University Press, 1998. Print.

Glaser, Barney G, Anselm L. Strauss. *The Discovery of Grounded Theory: Strategies for Qualitative Research.* New York: Aldine De Gruyter, 1967. Print.

Gould, Kira, and Lance Hosey. *Women in Green: Voices of Sustainable Design.* Bainbridge Island, WA: Ecotone, 2007. Print.

Greene, Jennifer C., Valerie J. Caracelli, and Wendy F. Grahm "Toward a Conceptual Framework for Mixed-Method Evaluation Designs." *Educational Evaluation and Policy Analysis* Vol 11 No.3 (Fall 1989): 256. Print.

Hardin, Garrett. "The Tragedy of the Commons." *SCIENCE* 13 (Dec. 1968): 1243-1248. Print.

Hughes, J. Donald. *Ecology in Ancient Civilizations.* Albuquerque, N.M.: University of New Mexico Press, 1975. Print.

Jos Boys. "Neutral Gazes and Knowable Objects, Challenging the Masculinist Structures of Architectural Knowledge." Eds. Duncan McCorquodale, Katerina Ruedi, Sara Wigglesworth. *Desiring Practices, Architecture, Gender, and the Interdisciplinary.* London: Black Dog Pub, 1996. Print.

Kant, Immanuel (1724-1804). "Second Formulation of the Categorical Imperative: Humanity as an End in Itself." *Fundamental Principles of the Metaphysics of Morals*. Translated by T. K. Abbott. London: Longmans, Green and Co., 1873. Print.

Kant, Immanuel. “Treatment of Non-persons.” *Lectures on Ethics.* Trans. Louis Infield. New York: Harper & Row, 1963. Print.

King, Roger J.H. “Caring about Nature: Feminist Ethics and the Environment.” *Ecological Feminist Philosophies.* Ed. Karen J. Warren. Bloomington: Indiana University Press, 1996. 82-96. Print.

Kronlid, David. *Ecofeminism and Environmental Ethics, An Analysis of Ecofeminist Ethical Theory.* Uppsala, Sweden: Elanders Gotab, 2003. Print.

Laugier, Marc-Antoine. *An Essay on Architecture.* Los Angeles: Hennessey & Ingalls, 1977. Print.

Leopold, Aldo. *A Sand County Almanac: And Sketches Here and There.* New York: Oxford University Press, 1966. Print.

Lin, Ann Chih. “Bridging Positivist and Interpretivist Approaches to Qualitative Methods.” *Policy Studies Journal* 26.1 (Spring 1998): 162-176. Print.

Maguire, Robert. “A Conflict between Art and Life?” *Architecture For People: Explorations in a New Humane Environment.* Ed. Byron Mikellides. New York: Holt, Rinehart, and Winston, 1980. Print.

Marcuse, Herbert. *One-dimensional man; studies in the ideology of advanced industrial society.* Boston: Beacon Press, 1964. Print.

Martin, Rochelle. “Out of Marginality, Toward a New Kind of Professional.” Architecture: A Place for Women. Eds. Ellen Perry Berkeley Matilda McQuaid. Washington: Smithsonian Institution Press, 1989. Print.

Mellor, Mary. “Ecofeminism: Linking Gender and Ecology.” *The SAGE Handbook of Environment and Society.* Eds. Jules Pretty, Andy Ball, Ted Benton, Julia Guivant, David R Lee, David Orr, Max Pfeffer, Hugh Ward. Los Angeles; London: SAGE, 2007. 66-77. Print.

McDonough, William. *Cradle to Cradle: Remaking the Way We Make Things.* New York: North Point Press, 2002. Print.

McDonough, William. "The Hannover Principles. 1992." *Theories and Manifestoes of Contemporary Architecture, Second Edition.* Eds. Charles Jencks and Karl Kropf. Chichester, England; Hoboken, NJ: Wiley-Academy, 2006. Print.

McLennan, Jason F. *The Philosophy of Sustainable Design: The Future of Architecture.* Ecotone, Kansas City, Mo: Ecotone, 2004. Print.

McNeill, Donald. *The Global Architect: Firms, Fame, and Urban Form.* New York: Routledge, 2009. Print.

Murray, John. "Can Women's Ways of Knowing Lead Us to More Ecologically Responsible Design?" *Architectural Theory Review* Vol. 2, Iss. 2 (1997): 127-133. Print.

Orr, David W. "Ecological Design and Education." *The SAGE Handbook of Environment and Society.* Eds. Jules Pretty, Andy Ball, Ted Benton, Julia Guivant, David R Lee, David Orr, Max Pfeffer, Hugh Ward. Los Angeles; London: SAGE, 2007. 209-223. Print.

Orr, David. *The Nature of Design: Ecology, Culture, and Human Intention.* Oxford; New York: Oxford University Press, 2002. Print.

Ortner, Sherry B. "Is Female to Male as Nature Is to Culture?" *Feminist Studies* Vol. 1, No. 2 (Autumn, 1972): 5-31. Print.

Patton, Michael Quinn. *Qualitative Research & Evaluation Methods.* Thousand Oaks, CA: Sage Publications, 2002. Print.

Plumwood, Val. "Environmental Ethics." *The SAGE Handbook of Environment and Society.* Eds. Jules Pretty, Andy Ball, Ted Benton, Julia Guivant, David R Lee, David Orr, Max Pfeffer, Hugh Ward. Los Angeles; London: SAGE, 2007. 250-266. Print.

Plumwood, Val. *Feminism and the mastery of nature.* London; New York: Routledge, 1993. Print.

Plumwood, Val. “Toward a Progressive Naturalism.” Recognizing the Autonomy of Nature : Theory and Practice. New York: Columbia University Press, 2005. Print.

Pretty, Jules, and Andy Ball, Ted Benton, Julia Guivant, David R Lee, David Orr, Max Pfeffer, Hugh Ward, eds. “Introduction to Environment and Society.” *The SAGE Handbook of Environment and Society.* Los Angeles; London: SAGE, 2007. 1-32. Print.

Rendell, Barbara. “Introduction: Gender Space Architecture.” *Gender Space Architecture: An Interdisciplinary Introduction.* Eds. Jane Rendell, Barbara Penner, and Iain Borden. London; New York: Routledge, 2000. 15-24. Print.

Roach, Catherine. “Loving Your Mother: On the Women-Nature Relation.” *Ecological Feminist Philosophies.* Ed. Karen J. Warren. Bloomington: Indiana University Press, 1996. 52-65. Print.

Rogers, Richard. *Cities for a Small Planet.* Westview, Boulder, Co: Westview, 1998. Print.

Rubin, Gayle. “The Traffic in Women: Notes on the “Political Economy” of Sex.” *Toward an Anthropology of Women.* Ed. Rayna R. Reiter. New York: Monthly Review Press, 1975. Print.

Rubin, Herbert J, Irene S. Rubin. *Qualitative Interviewing, The Art of Hearing Data.* Thousand Oaks, CA: Sage Publications, 2005. Print.

Saint, Andrew. “Architecture as Image: Can we rein in This New Beast?” *Reflections on Architectural Practices in the Nineties.* Ed. William Saunders. New York: Princeton Architectural Press, 1997. Print.

Saint, Andrew. *Image of the Architect.* New Haven: Yale University Press, 1983. Print.

Saint Augustive of Hippo. *City of God.* Trans. J.F. Shaw and Marcus Dods. Edinborough: Clark Publishing, 1913. 286-287. Print.

Salant, Priscilla, and Don A. Dillman. *How to Conduct Your Own Survey*. Canada: John Wiley & Sons, 1994. Print.

Sangren, P. Steven. “Masculine Domination: Desire and Chinese Patriliny.” *Critique of Anthropology* Vol. 29 (2) (2009): 139-162. Print.

Small, Mario Luis. “How many cases do I need?: On science and the logic of case selection in field-based research.” *Ethnography* Vol. 10 (March 2009): 15-38. Print.

Spector, Tom. *The Ethical Architect.* New York: Princeton Architectural Press, 2001. Print.

Soper, Kate. *What is nature?: Culture, Politics and the Non-Human.* Oxford; Cambridge, Mass., USA: Blackwell, 1995. Print.

Tashakkori, Abbas, and Charles Teddlie. *Mixed Methodology Combining Qualitative and Quantitative Approaches.* Thousand Oaks, CA: Sage Publications, 1998.

The American Institute of Architects. “The Business of Architecture: An AIA Survey Report on Firm Characteristics.” *The American Institute of Architects.* The American Institute of Architects, 2009. Web. 4 April 2012 <http://www.aia.org/press/kit/background/AIAB092524?dvid=&recspec=AIAB092524>

U.S. Department of Commerce. “C-Series Reports.” *Manufacturing and Construction Division, Census Bureau.* U.S. Department of Commerce, 1995. Web. 15 April 2012. <http://www.census.gov/econ/census02/advance/TABLE2.HTM>.

US Department of Energy. “Building Energy Data Book.” *US Department of Energy*. US Department of Energy, 2012. Web. 23 April 2012. <http://buildingsdatabook.eren.doe.gov/ChapterIntro1.aspx>.

U.S. Department of Energy. “Emissions of Greenhouse Gases in the United States 2007.” Energy Information Administration, U.S. Department of Energy, December 2008. Web. 15 April 2012. <http://www.eia.doe.gov/oiaf/1605/ggrpt/index.html.>

US Environmental Protection Agency. “Buildings and Their Impact on the Environment: A Statistical Summary.” *US Environmental Protection Agency.* Environmental Protection Agency, 2009. Web. 15 April 2012. <http://www.epa.gov/greenbuilding/pubs/gbstats.pdf>.

U.S. Environmental Protection Agency. “Municipal Solid Waste in the United States: 2007 Facts and Figures.” *Office of Solid Waste, U.S.* Environmental Protection Agency. October 2003. Web. 15 April 2012. <http://www.epa.gov/epawaste/nonhaz/municipal/msw99.htm>

US Environmental Protection Agency. “Wastes-Non-Hazerdous Wastes-Industrial Waste.” *US Environmental Protection Agency.* Environmental Protection Agency, 2012. Web. 23 April 2012 <http://www.epa.gov/osw/nonhaz/industrial/cd/basic.htm>.

U.S. Geological Survey. “Estimated Water Use in the United States in 1995.” U.S. Geological Survey, 1995. Web. 15 April 2012. <http://water.usgs.gov/watuse/pdf1995/html/>

U.S. Green Building Council. “What LEED Is.” U.S. Green Building Council, 2011. Web. 15 April 2012. <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1988>

Vale, Brenda and Robert. “Green Architecture. 1991.” *Theories and Manifestoes of Contemporary Architecture, Second Edition.* Eds. Charles Jencks and Karl Kropf. Chichester, England; Hoboken, NJ: Wiley-Academy, 2006. Print.

Warren, Karen J. “Ecological Feminist Philosophies: An Overview of the Issues.” *Ecological Feminist Philosophies.* Ed. Karen J. Warren. Bloomington: Indiana University Press, 1996. ix-1. Print.

Warren, Karen J. “The Power and Promise of Ecological Feminism.” *Ecological Feminist Philosophies.* Ed. Karen J. Warren. Bloomington: Indiana University Press, 1996. 19-41. Print.

Weisman, Leslie. *Discrimination by Design.* Urbana: University of Illinois Press, 1992. Print.

Williamson, Terry, and Antony Radford, Helen Bennetts (eds.). *Understanding Sustainable Architecture.* London; New York: Spon Press, 2003.

Woodard Smith, Chloethiel. “Architects without Labels: The Case Against All Special Categories.” *Architecture: A Place for Women.* Eds. Ellen Perry Berkeley and Matilda McQuaid. Washington: Smithsonian Institution Press, 1989. Print.

Wright, E.L. (ed.). *Feminism and Psychoanalysis : A Critical Dictionary.* Oxford, UK; Cambridge, Mass., USA: Blackwell Publishers, 1992. Print.